



Obtaining competitive advantages based on specific resources and capabilities. The case of Corticeira Amorim.

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## ABSTRACT

Independently of the company or industry to which it belongs, the idea of getting a position of competitive advantage in relation to competitors gains an increasing importance, mostly in a global world where being highly competitive is a fundamental driver of the company's strategy. But to understand the process through which a company attains that position might turn out to be a complex task. There is a lot of research dedicated to understand how companies obtain and manage their resources or capabilities in order to achieve competitive advantages. The Resource Based View (RBV), one of the best known theories, considers that it is based on a set of valuable, rare, inimitable and not substitutable (VRIN) resources that a company can achieve a competitive advantage. More focused on the internal context, the RBV approach did not seem able to explain how the ownership of those resources could in practice become sources of competitive advantage. The concept of RBV evolved consistently and a new approach appeared, based on the basic principles of RBV. This new theory, defined as Dynamic Capabilities approach, was considered an extension of the first one and attributes the emphasis to the capacity that the company has to integrate, manage and modify its resources in order to adapt to the external environment. The ownership of critical resources is still important, however the ability to achieve a competitive advantage position is more dependent on the company's capacity to organize and use them rather than on its ownership. The emphasis is now on the Organization factor. The theory concerning RBV and Dynamic Capabilities is the theoretical basis for the present dissertation.

The aim of this study is to understand which resources are in the basis of a competitive advantage situation, using a practical example. More particularly, the research question is "*What are the resources or capabilities owned by the company that might be the basis for the competitive advantage and how were they developed?*". The company chosen to develop the study was Corticeira Amorim, a Portuguese cork company. In order to answer the research question, the potential sources of competitive advantage were analyzed and codified using a theoretical model developed by Cardeal (2010).

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## **List of Abbreviations**

Apcor – Associação Portuguesa de Cortiça (Portuguese Cork Association)

CA – Corticeira Amorim

BU – Business Unit

INE – Instituto Nacional de Estatística

MOR – Market Oriented Research

RBV – Resource Based View

VRIN - Valuable, Rare, Inimitable and Non substitutable

VRIO – Valuable, Rare, Inimitable and Organization

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# **I. Introduction**

The mechanisms to transform specific resources or capabilities into sources of competitive advantage are a matter of great interest to researchers and entrepreneurs. From the literature available we can see that a lot has been written about the theme, providing a range of concepts and theories that are not always coincident. The Resource Based View (Barney, 1991; Teece, Pisano and Shuen, 1997) tried to explain the process by attributing the emphasis to the ownership of resources that, according to Barney (1991), should verify four main critical characteristics – value, rareness, inimitability and non substitutability (VRIN) in order to be able to be considered as potential sources of competitive advantage. However, the finding that not all companies possessing VRIN resources were able to achieve a competitive advantage position led to some doubts and uncertainties. The result was a constant evolution of the theory that is now more focused on the external environment rather on the ownership of those critical resources. The Dynamic Capabilities theory (Teece, Pisano and Shuen, 1997; Barreto, 2010, Ambrosini and Bowman, 2009), considered as an extension of the Resource Based View (RBV), attributes a greater importance to the organization of those resources instead of on its simple possession, regardless of the maintenance of the value of the company's resources. Because it is a more recent approach, the Dynamic Capabilities literature is still in construction. In Barreto's article (2010) the main differences between the concepts and characteristics are summarized and compared, giving a real perception that it is still a theory in progress.

To better understand what has been written and in order to add a more practical sense of the concepts, the present study focuses on a particular case of the Portuguese industry and tries to explain how some resources and capabilities became truly sources of competitive advantage. It starts by identifying and analyzing them and ends up with the application of a theoretical model provided for similar industries, where the rate of change is more moderate. The study aims to add significant insight into a theory that is still extremely conceptualized.



## **II. Literature Review**

To better understand the process to achieve a position of competitive advantage, I dedicate this first section to the existing theory concerning the theme. My focus was on three main topics, namely the Resource Based View, the concept of competitive advantage and the idea of Dynamic Capabilities.

The objective is to give an overview of what was written by some experts about these concepts, from its foundations until more recent approaches. Thus, I refer authors like Porter (1981) and Barney (1991, 1997) as well as more recent theorists like Barreto (2010) or Cardeal (2010). By doing this, I aim not only to make reference to some of the most important concepts developed by these authors but also to try to explain how these concepts evolved until our current days.

I used a bottleneck technique, where I first describe some of the theories and concepts used and then I choose the one that I consider to be more adequate to the present study. The objective is to be as coherent as possible when referring to concepts or describing procedures.

The Literature Review section is divided into three main parts. The first one is related to the foundations of the concept of Resource Based View (RBV), meaning all the theories existing before it to explain possible approaches to achieve a position of competitive advantage. More specifically, the concepts of Competitive Forces and Strategic Conflict designed and developed by Porter (1980) and Shapiro (1989). The second part is dedicated to the concept of RBV and its initial prepositions. Barney (1991) is the most referred to author since he dedicated a lot of his work to this specific theme. In the final part of the section I describe the idea of Dynamic Capabilities as it is considered an extension of the RBV, making reference to authors like Ambrosini and Bowman (2009) and Barreto (2010), among others.

## Before RBV

The beginning of the Strategic Management as an independent topic dates from the early 60s, when the idea of the company as a unified organism got a greater significance. Since then the field of strategic Management has not only become broader but also more complex, resulting in both an evolution and clarification of the concepts. Authors like Igor Ansoff and Peter Drucker had an extreme importance in defining and developing some of the basic concepts.

Thus, to study the theme of the sustained competitive advantages we must go back some years in order to understand how the most important concepts evolved until today. Despite being frequently used in the traditional literature, the concept of RBV has a lot of research and findings in its foundations. The startup point of the RBV was the need for a new perspective that could better explain the reasons for competitive advantage as an alternative to the existing approaches.

Up to this point, the initial work developed in this field tended to focus on environmental conditions to explain companies' levels of performance (Barney, 1991). The focal point was to analyze the company's opportunities and threats considering its competitive environment (Barney, 1991) giving no greater importance to the effect of idiosyncratic firm attributes in its performance (Porter, 1990). The two main approaches based on this method were the **Competitive Forces approach** and the **Strategic Conflict approach**, first theorized by Porter in 1980 and Carl Shapiro in 1989 respectively and that would be briefly described in this section (Teece, Pisano and Shuen, 1997).

Before that, it is important to clarify two important premises of these approaches: the first one is that the two models assume that firms inside an industry are similar concerning the strategic resources they use and strategies they follow (Porter, 1981; Rumelt, 1984; Scherer, 1980), the second is related to the assumption that resources are perfectly mobile, being the companies in the same industry able to buy and sell them on the market, what will certainly decrease the possibility and maintenance of any resources heterogeneity among firms (Barney, 1986; Hirshleifer, 1980).

As Teece et al. (1997) explain, in the 1980s the dominant theory was based on the Competitive Forces approach, designed by Porter (1980). This perspective defends that any strategic decision is taken according to the industry structure to which the company belongs, having the external environment a considerable impact on the firm's strategies (Teece et al., 1997). The attractiveness of an industry and consequently the potential for the company to increase profits is, based on this approach, defined by the actions taken by the firm considering the five competitive forces – entry barriers, power of buyers, power of suppliers, rivalry and possible substitutes.

Another theory concerning business strategy appeared in the 80's. More precisely, it was first announced by Carl Shapiro in 1989 and stipulates the game theory as the main driver for business strategy within a market (Teece et al., 1997). The general idea was that a firm is able to influence the competitors' behavior based on its own decisions and actions, manipulating the environment in order to increase profits. Teece et al (1997) refer investments in capacity, R&D and advertising as decisions that allow influencing competition.

Critics on these models were convergent in the sense that they were not able to generate testable predictions and they were extremely dependent on market specifications (such as strategic asymmetries or models of price competition) or on competitors' decisions (Sutton, 1992). Kraaijenbrink, Spencer and Gronen (2010) present in their article *The Resource-Based View: A Review and Assessment of Its Critics* eight main critiques to the theory that were the driver for further developments.

### **The Resource Based View approach**

As an alternative to the theories based on the competitive market position, a new approach emerges and attributes a greater emphasis to the internal context rather than to the external environment (Barney, 1991). In this sense, a lot of authors contributed to this topic and all research available led to a more consistent and reliable theory defined as Resource Based View.

In 1997 Teece et al. characterized RBV as focusing on scarce firm specific resources instead of earning profits from its market position. In their point of view, since all firms have different strengths and weaknesses, its competitive advantage

depends more on which resources firms can use in order to differentiate themselves, rather than the external opportunities it confronts. The scarcer the resources the greater is the ability of the company to differentiate from the competition. In the same line Rumelt (1991) emphasize the importance of firm specific factors by saying that “intraindustry differences in profits are greater than interindustry differences in profits” (Rumelt, 1991). Looking at Barney’s (1991) findings we can see that he considers companies with valuable, rare, imperfectly imitable and non substitutable (VRIN) resources as those that are able to have a competitive advantage.

As Barney (1991) explains in his article, since RBV focuses on company’s internal resources, it can no longer build its rational under the assumptions presented by the market position theories. Thus, he presents two alternative assumptions in RBV: firstly heterogeneity among the companies’ resources within the same industry is possible and secondly those resources might not be perfectly mobile, being possible to extend the heterogeneity between competing firms.

The concept of resources has a crucial role in this approach. Thus, before further analysis it might be interesting to clarify its meaning. In their article, Teece et al. (1997) define resources as:

*“... firm specific assets that are difficult if not impossible to imitate. (...) such assets are difficult to transfers among firms because of transactions costs and transfer costs, and because the assets may contain tacit knowledge.” (Teece et al., 1997)*

Baney provide us the following definition that will be the one considered in this study:

*“... all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness (Daft, 1983). (...) these numerous possible firm resources can be conveniently classified into three categories: physical capital resources (Williamson, 1975), human capital resources (Becker, 1964) and organizational capital resources (Tomer, 1987)” (Barney, 1991).*

### **Characteristics of the RBV**

We can find the origin of RBV in Penrose (1959), nevertheless, was only with Barney (1991) that the topic of firm resources gained a greater importance.

In his article in 1991, Barney states that not all firm's resources are considered as possible sources of competitive advantage. He points out four necessary requirements that resources need to fulfill in order to be considered as potential sources of sustained competitive advantage:

Firm resources need to be valuable, this being a compulsory characteristic to be considered as a source of competitive advantage, besides all other requirements that they may fulfill. Being valuable means that they allow the company to design and implement strategies that improve its performance by enhancing its efficiency and effectiveness. Thus, there are several resources that, despite being important to the firm's operations, are not considered sources of competitive advantage because they do not accomplish this requirement.

A second important requirement is that resources must be rare. The idea is that if they are easily accessible, every company will possess the same resources, being able to exploit them and to design similar strategies that will not allow competitive advantages. This does not mean that common resources are not important, actually they are essential for the company to guarantee a certain level of competitive parity, which however does not allow any competitive advantage (Barney, 1989). How rare a resource must be in order to be considered as a source of competitive advantage is still a matter of discussion.

A third requirement pointed out by the author is that these resources must be difficult to copy, or in Barney's (1991) and Lippman and Rumelt's (1982) words, imperfectly imitable. This difficulty to duplicate resources might be related with its dependency on historical conditions, possible causal ambiguity between the resource and the competitive advantage or with the social complexity attributed to the resource (Dierickx & Cool, 1989).

In Barney's article (1991) he explains these aspects in more detail. Recently, several economists pointed out the companies' historical events as having extremely important impacts on companies' performance. When a resource is obtained and

developed because of a company's unique path then it will become far more difficult to replicate by competition. In terms of ambiguity, Barney says that when the link between the resources is not clearly understandable it becomes much more difficult to copy. Competitors might identify some important resources but it is not certain that they can specifically recognize the one that is the source of competitive advantage. An important consideration about causal ambiguity is that, in order to be effective, the relation between the resource and the competitive advantage must also be unclear for the owning firm. The idea is that once the firm with competitive advantage understands the link it will become possible to be replicated by competition. Finally, social complex resources, like reputation, loyalty or personal relations, might increase the difficulty of imitation (Barney, 1991).

Finally, resources must be non substitutable in order to impede competitors to implement the same competitive advantage through a different strategy or, in other words, by using other resources not rare and imperfectly imitable. The substitutability factor can be achieved through similar resources or very different resources, as explained by the author.

Based on VRIN framework is possible to establish the difference between competitive advantage and sustained competitive advantage. According to the author, a firm has a competitive advantage when (a) implements a valuable strategy that (b) is not implemented by any other current or potential competitor simultaneously. Although it allows having a position of advantage relatively to competition, nothing refers to sustainability. In Barney's approach, the competitive advantage only becomes sustainable (c) when competitors are unable to duplicate its benefits. In other words, companies have a competitive advantage if they own valuable, rare and non substitutable resources, however the competitive advantage only becomes sustainable if they were difficult to duplicate. This difficulty can either result from the fact that competitor's cannot access the same resources, because they are not available or because they do not comprehend them (casual ambiguity), or because they cannot find alternative resources that would result in an equivalent strategy. Thus, the sustainability factor is not dependent on the period of time that a company benefits from a competitive advantage position, but on the possibility of duplicating the competitors' strategy (Barney, 1991). Nevertheless, the increasing dynamism of the markets and pace of change led to a greater focus on achieving short-term competitive advantage rather than

on achieving sustainable competitive advantages that require a certain period of time (Cardeal, 2010).

Barney's perspective was criticized by some authors that pointed out some weak aspects of RBV, in particular in what concerns to VRIN framework. In Kraaijenbrink et al. (2010) some of these critiques are summed up, showing the weaknesses of the theory.

The criticism around the theory led to an evolution of the concept. The perception that VRIN resources are only valuable if managed in a superior manner and become useless when controlled by unqualified people (Cardeal, 2010), led to idea that the differentiator factor was, in truth, how companies organize their resources. Therefore, the new framework now defined as VRIO (valuable, rare, Inimitable and Organization) and theorized by Barney (1997), suppose that is through internal organization that the company is able to transform resources in competitive advantages. The emphasis remains in critical resources, nevertheless a great importance is attributed to the way they are managed.

### **The evolution of the RBV concept – Dynamic Capabilities**

Regardless all insights given by Barney and other authors in what relates to RBV and its mechanisms to achieve competitive advantage; some the critiques pointed out the theory. Since it aimed to explain how firms could increase profits in equilibrium, it was characterized as a quite static view of the external environment (Priem and Butler, 2011). In rapid changing environments, RBV was not able to explain how companies could sustain their competitive advantage (Ambrosini and Bowman, 2009). This idea was also shared by Teece and Pisano when they wrote that RBV was not able to explain how successful firms could adapt and integrate internal and external skills in order to adjust to environmental changes (Teece et al., 1997). The fact that some companies belong to markets characterized by rapidly changing environments increased the emphasis on “*how firms can change their valuable resources over time and do so persistently*” in order to maintain the competitive advantage position (Ambrosini and Bowman, 2009).

Thus, the theory based on the resources evolved and attributed a greater emphasis on how resources can actually become sources of competitive advantage. This was the starting point of a new theory called Dynamic Capabilities. According to this theory, a competitive advantage position was a result of the firm's capacity to rapidly respond to market changes while coordinating internal and external competences. The possession of a set of valuable resources was not enough to gain market superiority, being this position only possible through true rapid adaptation, flexibility and innovation in managing firm's resources (Teece et al.'s, 1997).

In Teece et al.'s (1990) article they wrote:

*“ (...) it is not only the bundle of resources that matter, but the mechanisms by which firms learn and accumulate new skills and capabilities, and the forces that limit the rate and direction of this process”*  
( Teece et al. 1990).

Besides Teece et al. (1997) also Nelson and Winter (1982) defended an efficient approach as an alternative to the market position approach. Despite the focus remaining in the internal factors of the firm rather than in its external aspects, Dynamic Capabilities approach added some new ideas to the RBV. Thus, because the foundations were the same, the new theory was considered an evolution of the RBV (Ambrosini and Bowman, 2009). Moreover Teece et al. (1997) even declared that Dynamic Capabilities theory was able to overcome the RBV limitations. In his article Barreto (2010) provides a clear comparison between RBV and Dynamic capabilities that perfectly elucidates the reader about these two concepts: *“The RBV intends to explain the conditions under which firms may achieve a sustained competitive advantage based on their bundles of resources and capabilities. Resources are “stock of available factors that are owned or controlled by the firm,” whereas capabilities “refer to a firm's capacity to deploy resource, usually in combination, using organizational processes, to effect a desired end””*

The conceptualization on Dynamic Capabilities was matter of research in several written articles, which provide us a range of similar definitions and characteristics of the concept. In Barreto's recent article (2010) is possible to see that despite the basic common aspects in all Dynamic Capabilities definitions, there are some particular aspects and details where these definitions are not perfectly consistent. The basis of the



concept were in RBV but only in Amborisi and Bowman (2009) is possible to find a compilation of Dynamic Capabilities definitions provided by authors like Zollo and Winter (2002), Winter (2003), Zhara et al. (2006) and Helfat et al. (2007). More particularly, I stress the definition given by Teece et al. (1997) where they define Dynamic Capabilities as *‘the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments’*. Another important definition emerged from the Barreto’s article (2010), since this is not only more recent but also because it tries to overcome some of the criticism directed at previous definitions. In Barreto’s words:

“ (...) *A Dynamic capability is the firm’s potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions and to change its resource base*” (Barreto, 2010)

The definition provided by Barreto has a multidimensional facet since it is constituted by four distinct but related dimensions: propensity to sense opportunities and threats, to make timely decisions, to make market oriented choices and to alter the firm’s resource base (Barreto, 2010). In the author’s point of view, all four dimensions are important and related. Past research already emphasized the role of Dynamic Capabilities in modifying and creating resources to better address the environment and also stressed the importance of framing possible opportunities and threats. Besides these two dimensions, a great importance is given to timing and market orientation, since there is a consensus that a capability can only become valuable if it is incorporated by the firm at a precise time and based on a specific content (Barreto, 2010).

The main contribution of Barreto’s definition is that it focuses on responding to the criticism pointed out by past research. The fact that it tries to capture a lot of previous research by this multidimensional facet makes the definition more coherent and clear. From the definition, the word “systematically” clearly states the persistency factor that is related to an on-going process that is never finished and in the same way, the word “potential” stresses the need to be exercised at any moment (Barreto, 2010).

What differentiates this new perspective from the RBV approach is that the focus is no more in the resources per se, but in the organizational processes to integrate them. Thus, to sustain competitive advantage, firms must adapt to the external

environment by renovating their stock of resources (Ambrosini and Bowman, 2009). The creation of new capabilities is as important as the exploitation and restructuration of the current ones (Hamal and Prahalad, 1989). Based on this perspective, VRIN resources that are not adjusted through dynamic capabilities do not allow the firm to benefit from higher returns (Winter, 2003) and tend to become core rigidities, defined by Ambrosini and Bowman (2009) as the *‘resources that used to be valuable but become obsolete (...) [because they] have not been appropriately adapted, upgraded or restructured through dynamic capabilities’*.

A deeper analysis of the term “Dynamic Capabilities” might be interesting to better comprehend its meaning. Based on Ambrosini and Bowman’s (2009) article, the word “capability” means a process and should never be considered separated from the term “dynamic”. A dynamic capability is not a resource (as it may be considered in RBV perspective) and is not a static concept. In contrast, it is a process that impacts upon resources in order to renovate its stock and is dynamics because it results from the interaction between the dynamic capability and the resource itself (Ambrosini and Bowman, 2009).

The research done so far it is pretty detailed in what concerns defining concepts and theorizing different approaches. At the same time some were the authors that tried to develop frameworks that, based on their findings, could be able to explain the process developed by companies to achieve competitive advantage. In general, these frameworks were designed according to the characteristics of the industry studied or based on the author’s conclusions. Teece et al. (2007) provides us with a framework that includes sensing, seizing and reconfiguring capabilities as parts of the process to achieve a position of competitive advantage, particularly in ‘regimes of rapid (technological) change’ (Teece et al., 2007). Another model of capability formation and performance is presented by Zahra, Sapienza and Davidsson (2006) and explain a firm’s performance based on what the firm knows – Organizational Knowledge – and what it can do – Substantive Capabilities. Through Dynamic Capabilities the firm can transform both Substantive Capabilities and Knowledge in order to adapt to emerging conditions (Zahra et al., 2006). Accordingly to the authors, these Dynamic capabilities are extremely related with the decision-makers role, attributing a greater emphasis on their performance (Zahra et al, 2006). Besides Zahra et al, also Zollo and Winter (2002) suggested the Dynamic capabilities approach as being adequate to more stable

environments (Barreto, 2010). Another author providing an explicative competitive advantage framework to more moderate industries is Cardeal (2010). He proposes a new model for companies in moderate change industries and considers as main change factors four categories: decentralization, perseverance, policies and knowledge management. More detailed explanations are provided further ahead.

The present study aims to deeply comprehend how a particular company uses its resources and capabilities in order to reach a competitive advantage position. By studying a specific company we will be able to understand how, in practice, the possession of some resources linked to the implementation of some processes can become sources of competitive advantage in a certain type of industry. One of the above frameworks will be applied according to the characteristics of the industry that the company belongs to.

## III. Methodology

Besides being more coherent and precise, it is still difficult to incorporate the concept of Dynamic Capabilities inside an organization. Studies done previously seem to fail to explain how certain resources or capabilities, potential generators of competitive advantage, are developed. Understanding this process can result in a complex task, leading to some degree of difficulty in establishing a perfect link between one or more resources or capabilities and the company's performance.

Thus, I decided to focus my study on a specific company, leader in its market, in order to understand the whole process behind the development of one or more capabilities and how they became a source of competitive advantage. To address it I formulated the following research question: *What are the resources or capabilities owned by the company that might be the basis for the competitive advantage and how were they developed?*

The present study was divided into two phases. The first one consisted in a period of interviews and data collection that was analyzed in the second phase, where a deeper analysis was conducted in order to reach valuable conclusions to answer the question formulated.

During the first phase three interviews were done with different objectives. The first interview was broader and not so structured, where the main goal was to understand the drivers of the cork industry and become more familiar with the company. The following step was to make a link between what was collected and other information obtained through other sources. The other two interviews had a more structured alignment, since the goal was to identify the possible sources of competitive advantage and have a deeper knowledge about how they were developed inside the company.

The second phase consisted in the analysis of the data collected. Here it would had been possible to follow several types of studies, however it was decided to pursue a case study structure, since I wanted to focus on a company specific example. I firstly conducted the analysis of the identified resources in terms of value, rareness and level of inimitability, according to the VRIO framework provided by Barney (1997) described in the literature section. The next step was to apply one particular framework developed by a particular author to the capabilities identified in the company chosen. The criteria to choose which model to apply was intrinsically related to the characteristics of the industry that the company belongs to.

### **Industry and Company selection**

Before starting the project, several industries were considered to become the object of this study. The final choice fell on the cork industry, based on arguments that indicated this industry to be interesting in the field of the competitive advantages in Portugal. Firstly, the cork industry is a relevant activity for the Portuguese economy. This aspect is verifiable not only in the weight that it has on the exports but also in the recognition of Portugal as a traditional cork producer (Cork Industry Book, Apcor, page 10 and 15). Second the existence of the cork industry with such a significant role dates back to the XIX century, when the industry was still very primitive and low scale. The major transformations occurred in the mid 19<sup>th</sup> century, when Portugal had the opportunity to reinforce its role as a strong cork producer and when considerable improvements occurred (Cork Facts, Apcor, page 4).

In what concerns the company, the decision was easier, since I wanted to focus my research on the market leader. Thus, the company chosen had to have a clear position of competitive advantage, aspect that I first deduced from market indicators

and that then I confirmed by means of a more detailed analysis. A second requirement was the need to be a Portuguese company, despite the possibility of being present abroad. Based on these two conditions, the company chosen was Corticeira Amorim, Portuguese leader in the cork industry (Kripalani. 1992), which I briefly described further.

### **Data collection**

All the data collected for this study resulted from three main domains: interviews in the company, consultation of articles concerning the theme of competitive advantage and the analysis of available documents about the company and the industry.

All the interviews occurred between March and April of 2011. The first interview was with the director of one specific department, in the Amorim Revestimentos S.A facility located in São Paio de Oleiros, Santa Maria da Feira. Two more interviews were made, each having different objectives and purposes. The initial interview started with the company's presentation and understanding about general routines and procedures and its external environment, in other words the relationship with its stakeholders. It was also possible to identify, jointly with the interviewee, probable sources of competitive advantage that I analyzed later. Given the purpose and content of this meeting, it was made in a less structured way since it was planned just a set of more general and broader questions that were used as guidelines for this first session. The interview had the duration of approximately 90 minutes. The second meeting took place in the same location and had a more structured form, since the questions and focal point were more specific according to the source of competitive advantage chosen. At this point I had the opportunity to also speak with other collaborator that somehow participated in the process or had access to the resource generator of competitive advantage, more particularly someone responsible for the Innovation and R&D company's department. This meeting had the duration of 60 minutes. It is important to mention that the last two interviews were recorded, under the interviewee's authorization, transcript and added to the final document as an attachment. At a certain point I realized that I needed one more interview to clarify some details. This extra meeting occurred in the same place as the others and was again with both director of the Sustainability and Innovation department and the person responsible for the Innovation and R&D department jointly. The first interview was not

recorded, since it was more general and the interviewee gave a lot of written material about the company and the industry.

The consultation of documents about the company and the industry was equally important to reach and support the conclusions of the study. The company's site served as a preliminary source of gathering information about the firm and was the basis of the initial questions raised. Along the same line of thought both the Financial and Sustainability reports were also read in order to start to come up with possible differentiating elements and an article written by some journalists concerning Innovation. To have a deeper knowledge about the industry, other certified information was used, mainly the official site of the Portuguese Cork Association (apcor.pt).

### **Data Organization and Confidentiality**

In order to support all the conclusions of the study, there was a particular interest in organizing the data collected in a clear and easy-to access method. First, all interviews and contacts were designed to achieve valuable insights to answer the research question, second all data was filed in a data basis with a specific code in order to be easy to identify and finally, during this report all conclusions and references were properly documented based on the files previously organized. Thus, to reference a specific file, a type of code was used in order to make this task simpler: the letter "I" makes reference to the "Interviews" (filed in the IX. Section – Documents) and all documents to support the conclusions are identified as "Exhibits". When necessary the page was also specified in order to better support the whole study.

In terms of confidentiality, it is important to mention that the link between the interviews and the people interviewed were omitted. The exception is only accepted after formal authorization of the person to provide his/her identification.

## **IV. Data Analysis**

### **Cork Industry**

It is relatively difficult to precise either the period when cork started to be used or its initial main purposes. Despite cork's core application being necessarily associated

to stoppers, the incredible developments in its production as well as its properties, led to a considerable variety of products and application possibilities.

Throughout the years the cork production has been increasing its importance in the economy and in the environment of some Mediterranean countries, where the majority of the cork forest is concentrated. At a worldwide scale, the cork forest reaches approximately 2.277.700 hectares, being the four main producers Portugal, Spain, Algeria and Morocco (see table 1).

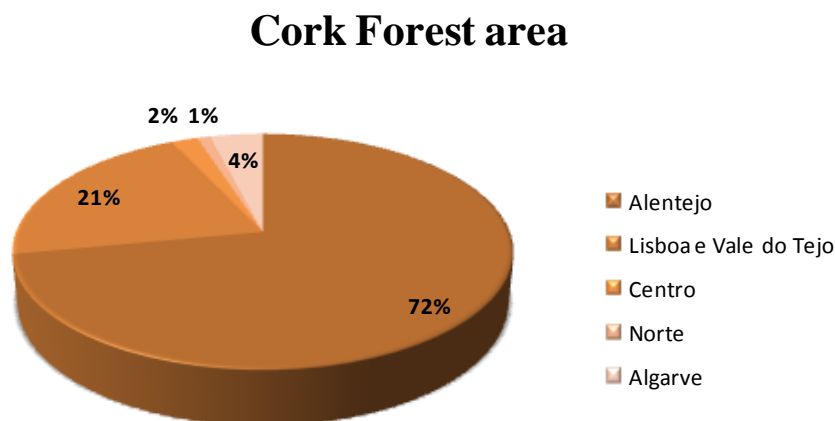
**Table 1 – Cork Forest area**

Country	Area (hectares)	Area (%)
Portugal	736.700	32.4
Spain	506.000	22.2
Algeria	414.000	18.2
Morroco	345.000	15.2
France	92.000	4
Tunisia	92.000	4
Italy	2185.700	4
Total	2.277.700	100

Source: Apcor yearbook 2009

As we can see from Table 1 Portugal is the major producer of cork, having approximately 32% of the total plant area which turns to be roughly 22% of the Portuguese forest (see Exhibit 1). If we consider the distribution of the cork forest inside Portugal we can see that the biggest slice is in Alentejo, with about 72% followed by Lisboa e Vale do Tejo with 21% (see Graph 1).

**Graph 1 – Portuguese cork forest area according to region (%)**



Source: Apcor yearbook 2009

Relatively to the cork production levels, data from 2009 shows that on average Portugal is responsible for 53% and Spain 30% (Table 2).

**Table 2 – Cork production worldwide**

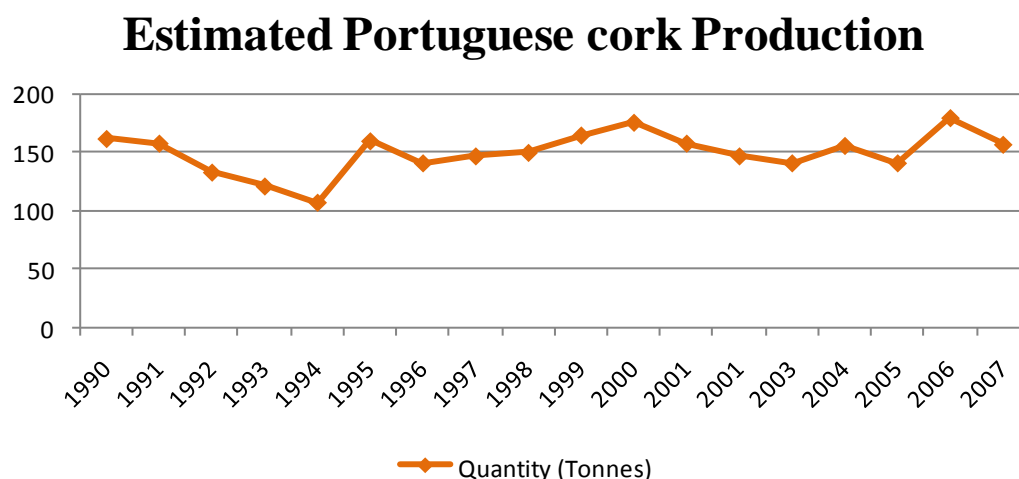
Country	Average annual production	%
Portugal	157,000	52,5
Spain	88,400	29,5
Italy	17,000	5,5
Algeria	15,000	5,2
Morocco	11,000	3,7
Tunisia	7,500	2,5
France	3,400	1,1
Total	299,300	100

Source: Apcor yearbook 2009

In terms of Portuguese cork supply, data collected by the Portuguese Cork Association (Apcor) shows a certain level of variation throughout the years, as we can see below (Graph 2).



**Graph 2 – Estimated Portuguese cork production (average)**



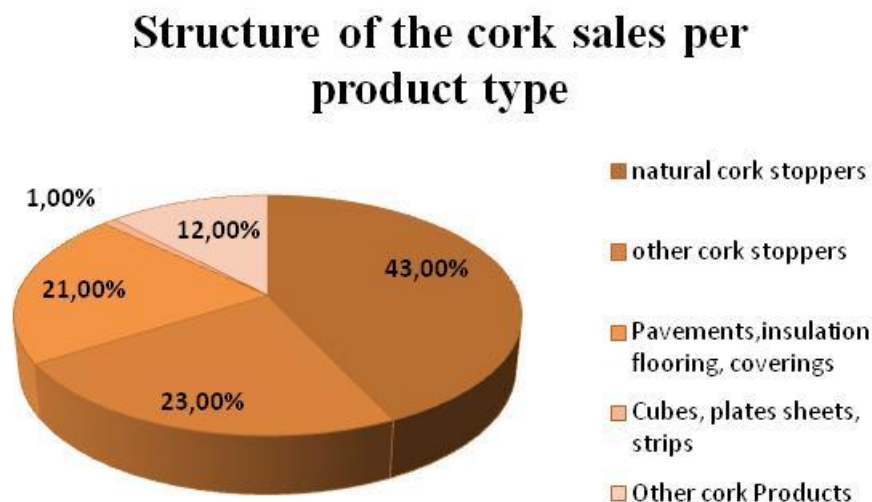
Source: Apcor yearbook 2009

Despite the cork production being highly presented in the region of Alentejo (see graph 1), the transformation process of the cork is extremely concentrated in Aveiro and Setúbal, with 75% and 13% of the industries employment respectively, as shown by the INE (Instituto Nacional de Estatística) data (Apcor yearbook 2009).

There are around 800 companies working in the industry, the majority located in the north of Portugal that employs nearly twelve thousand workers (Monthly Economic Activities Bulletin, January 2007).

The application of the cork can be diversified, although its biggest part goes naturally to the Wine Industry. The most important destination of the cork is the production of stoppers for the wine bottles, having the Construction sector also a large importance in the cork industry, as we can see in the Graph 3.

**Graph 3 – Structure of the cork sales per product type**

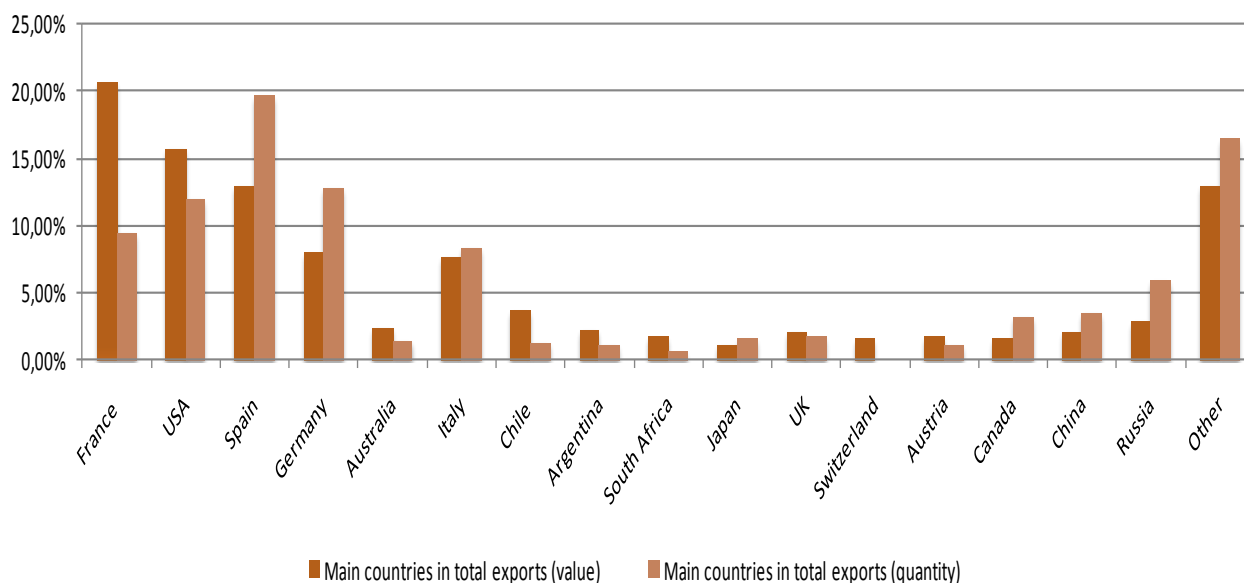


Source: Apcor yearbook 2009

The majority of the cork production is however exported to other countries. According to the United Nations Statistics, in 2006, Portugal was the number one on the list of the main cork exporters (see Exhibit 2). Data collected by the Apcor, shows that around 90% of the total cork produced inside Portugal is destined to the international market, reinforcing the importance of the industry for the Portuguese Trade Balance. In 2007 Portuguese cork exports accounted for 853.8 million € (see Exhibit 3). The value created by the Portuguese cork exports represents 0.7% of GDP, 2.3% of the total Portuguese exports (Apcor yearbook 2009).

The markets where the Portuguese cork exports have greater weight when compared to the total exported are Chile, Australia and Argentina (see Exhibit 4) but Europe is still the most important destination market, absorbing 52% of the Portuguese cork exports (Graph 4).

**Graph 4 – Portuguese Cork Exports by country – 2007**



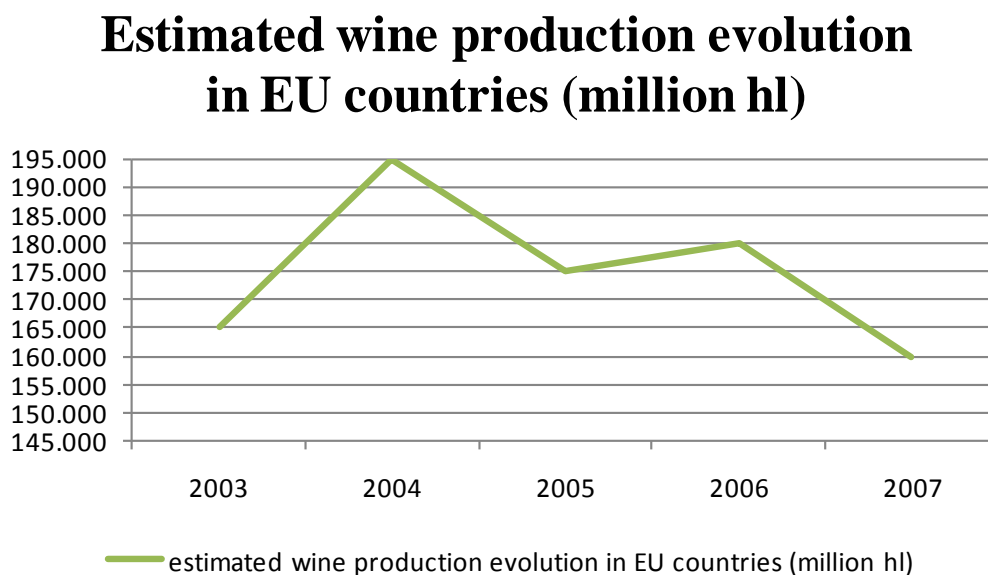
Source: Apcor yearbook 2009

If we consider the exports by the type of product, data from the Apcor shows that cork stoppers is the product type that allows higher gains, but in terms of quantities, building materials are those that more contribute in terms of volume for the total of cork exports (see Exhibits 5 and 6). For more information about the type of products exported please consult Exhibits 7 and 8.

Looking at the imports side it is still possible to confirm that, despite being the major producer of cork, Portugal is also the country that most imports cork to transform - 77% from Spain (Source: INE), and then exports it as different cork products. Imports amounts are presented in Exhibit 9.

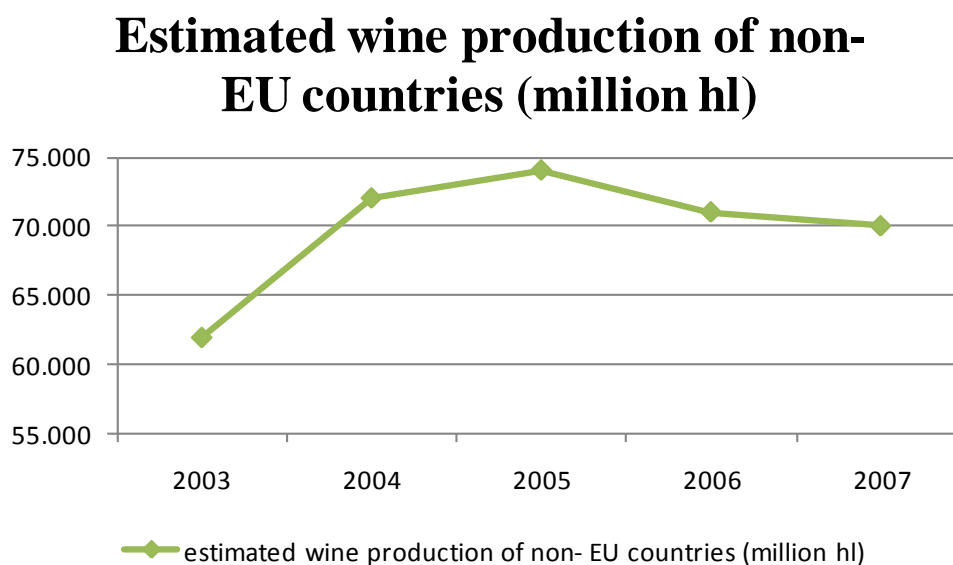
At this point, being the production of cork stoppers the activity that adds more value to the cork industry (despite not being the only one), it might be interesting to look at the Wine Industry. Collected data shows that the production of wine, both inside and outside EU countries, has been decreasing, what can be seen as a threat for cork companies.

**Graph 5 – Estimated wine production evolution in EU countries (million hl)**



Source: Apcor yearbook 2009

**Graph 6 – Estimated wine production of non- EU countries (million hl)**



Source: Apcor yearbook 2009

Cork industry is characterized by moderate change rate since, despite some innovation in what concerns to new products or new applications, these innovations occur slowly and they do not result from external shocks or strong competition.

Previous figures show that is still very dependent on one product – the stoppers (Graph 3), which weight is however decreasing in the total revenues throughout the

recent years. There are mainly seven types of cork stoppers; however the building, clothing and footwear industries are becoming progressively stronger destinations for cork produced.

### **The Company: Corticeira Amorim**

Corticeira Amorim (from now on, defined as CA) is a Portuguese cork company, leader in the cork industry and one of the biggest Portuguese companies. The company was founded in 1870 with one single utility to produce traditional cork stoppers specifically for Porto Wine. The first formal enterprise, created in 1922 under the name of Amorim & Irmãos was the origin of what later became the group Corticeira Amorim. Portugal was an important cork producer however the majority of the cork was exported and transformed in other countries. The need to also develop the cork transformation process inside Portugal resulted in the creation of the Corticeira Amorim, Lda in 1963 to transform all the waste resulting from Amorim & Irmãos, Lda.

Corticeira Amorim, Lda was the beginning of the product diversification strategy followed by the company. Not only was the range of products diversified but also its possible utilizations. A second phase of the company's strategy was to be present in other countries considered as important cork producers. Thus, in 1972 CA opens the first utility abroad - Comatral, S.A, in Morocco. These two phases were the result of an effort to adopt a vertical approach in the cork industry.

The next step was to grow internationally, not only by being present in the main cork producers countries but also in the most important cork consumption markets. This internationalization started in 1967 with the establishment of a commercial point unit in Wien and became a continuous process.

In the early 80's CA started one of its most important chapters by developing a new approach to the business. The new strategy focused in quality differentiation, by giving a great importance to research and quality control. CA's global presence and capacity to produce all potential products from the cork, allowed the company to concentrate on R&D and product improvements. In 1983 the company creates the Labcork – Central Lab for the CA among other important decisions focusing Innovation and R&D (for more details please check Exhibit 10 and 11). The greater importance

attributed to Innovation became more visible when in 2007 the company designed its strategy based on three main areas: Amorim Natural Cork, Amorim Cork Composites and Amorim Cork Research (see Exhibit 12), being this last one transverse to all company's departments and especially design to address the innovation challenge. Moreover, also the Mission of the company clearly stresses the importance of Innovation by including it in the mission statement:

*“To add value to cork in a competitive, distinctive and innovative way that is in perfect harmony with nature”.*

Another important pillar of the CA strategy is Sustainability, also evident in its mission statement. In 2007 the company launched the CARDS project – Corticeira Amorim Rumo ao Desenvolvimento Sustentável – to address the desire to incorporate good environmental practices to its activity. CA launched its first Sustainability Report in 2007 following a strategy of transparency and regular communication in environmental matters. The report was distinguished as one of the three best reports in *Openness and Honesty* category and one of the six best in *Relevance and Materiality* by the *Corporate Register*.

In terms of structure CA is organized into five business units: Raw Materials, Cork Stoppers, Floor and Wall Coverings, Composite Cork and Insulation Cork (see Exhibit 13). These business units are included in the three areas described above and each of them incorporates several industrial or commercial units. Since the beginning, it pursues a vertical approach that can be visible by the establishment of transformation utilities in several countries, the detention of distribution channels in the main consumption markets, the focus in R&D and by the customer services to guarantee high quality levels. The strategy followed by the company led to its recognition as an innovative company based on high levels of product development and adaptation to the market needs. Product differentiation is accompanied by high quality standards supported by a rigorous quality control.

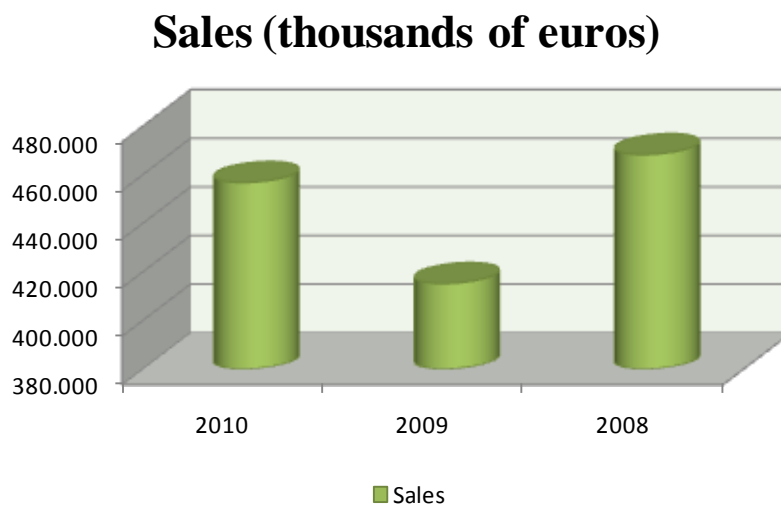
Throughout the years, CA had been working in a strategy constructed based on two pillars - product differentiation and worldwide presence that allowed the company to grow and to reach a position of competitive advantage, both inside and outside Portugal.

In 2009 the company was present in more than 63 countries, by which a range of several installations are distributed: 28 industrial units, 78 companies and 169 agents (see Exhibit 14). Concerning Market share of the main products, CA owns 25% of the market for Stoppers, 55% of the Composite cork market, 65% for the Floor and Wall Coverings and 88% of the market of Isolation Cork.

CA's leadership in the cork industry has been proved by the consistent growth and improvement in the company's results. The analysis of the performance indicators of the recent years shows that CA is improving its operations in volume and efficiency. The year of 2010 registered positive results when compared to 2009. The second semester was characterized by a general recovery of the markets, aspect particularly important for CA since it is extremely targeted to international markets. Important factors to this positive result were the aggressive promotion of some bottle suppliers, the vulnerability of some competitors and the great work developed by CA teams that allowed attaining the profitability of 2008, before the crisis. The year of 2009 was extremely difficult, due to the negative impact of the economic recession. Nevertheless, CA showed a remarkable capacity of adaptation that allowed the company to accomplish the goal of reaching positive results at the end of 2009, only possible through the adoption of some policies and measures and given its solid financial position built over the last years

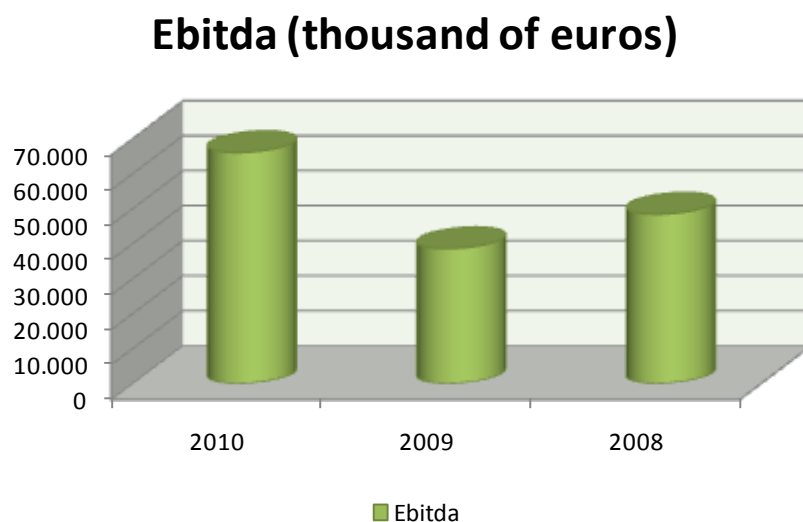
From Graph 7 is possible to verify that the sales grew around 10% in 2010, which despite being a very good outcome was not sufficient to overcome the fall registered in 2009. To this improvement contributed mainly the Stoppers business unit with a growth rate of 13% and the Insulation business unit with 7%. The good performance of all business units allowed an EBITDA of 66 million €, 71% more than 2009 (Graph 8). The impact of the financial measures permitted the expected debt reduction, as showed in graph 9, linked to the reduction of interests paid.

**Graph 7 – Corticeira Amorim sales – 2008 to 2010**



Source: Corticera Amorim Sustainability Report 2010

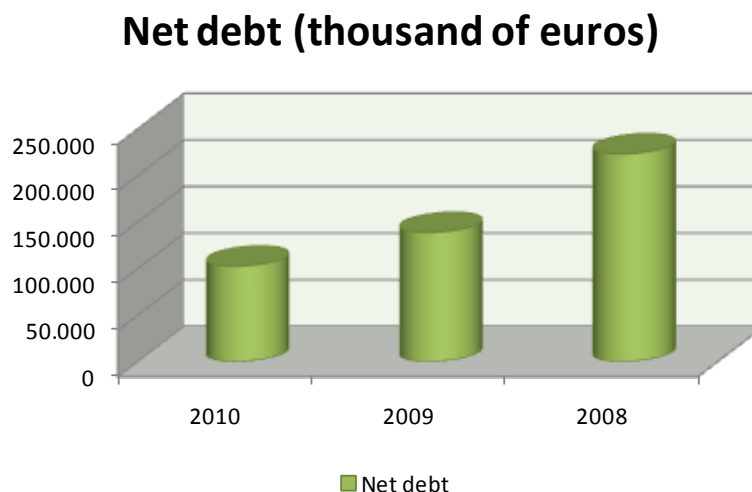
**Graph 8 – Corticeira Amorim EBITDA – 2008 to 2010**



Source: Corticera Amorim Sustainability Report 2010



**Graph 9 – Corticeira Amorim Net Debt – 2008 to 2010**



Source: Corticera Amorim Sustainability Report 2010

### **Competitive Advantage Position**

The purpose of the present study is to understand the process through which the company developed its resources and capabilities in order to achieve a position of competitive advantage. Data provided above confirm CA's position of market leader, but the processes behind this competitive advantage position are still unclear. In truth, to understand how all the processes occurred is the main purpose of this study and, as stated before, is what is going to distinguish it from more theoretical studies. By processes I want to say the routines, activities or decisions that were made or altered by the company in order to implement a new project that allowed achieving a competitive advantage position.

The first interview with one CA's director allowed me to comprehend that the company does not consider only one resource as source of competitive advantage. The director stated that one of the first and crucial resolutions to become more competitive (both in price and quality) was the decision to bet in a strategy of differentiation that relied in two main drivers: product differentiation and worldwide presence, in his words *"a diversified portfolio of high quality products that supplies all wine segments in every part of the world"* (I1). This was the driver of CA's strategy at a certain point, when the stoppers were its main product commercialized. According to the interviewee, these two elements allowed to overcome competition both in the same industry or alternative

industries: “*Competition is not able to offer such portfolio of products in so many countries and that clearly makes the difference*” (I1).

The *diversified portfolio* refereed by the director is possible given the great importance attributed to product innovation and research. This includes not only a specific and knowledge team, permanently focused in R&D, as well as high investments in equipment and research. CA considers Innovation one of the most important pillars to offer such diversified range of products that match market needs not only in what relates to the more common use of cork but also to other utilizations not so expected that result in innovative solutions. The consistently search for high levels of quality and performance is also important and only possible through the work developed by the R&D departments of each business unit.

The *presence in every part of the world* is possible through the net of cork production points, utilities locations and sales points in all five continents and in more than sixty countries. According to the company this is a differentiator element that cannot be dissociated from CA’s leadership position. The first expansion of the company occurred in 1972, however it was only during the 80’s that the internationalization strategy started to have a greater importance. The ownership of the distribution channels in different countries allowed to access trustful and valuable information faster than competition. The fact the there were no intermediaries between the company and the final client, led to a closer relationship between them, a greater capacity to anticipate market needs and to the inclusion of the margin that before was distributed among several intermediaries. Worldwide presence also contributed to the vertical integration of the process, mentioned by a CA’s collaborator during the second interview. CA controls all the value chain, from the acquisition of raw materials, its transformation, and product diversification to its capacity to offer a high quality service not only to the wine segment but also to other growing cork applications. The fact that the process is totally vertical makes the company able to utilize all cork, avoiding waste.

Despite being the above elements pointed as possible sources of competitive advantage I opted to focus on the one that I consider more interesting - product diversification, given the greater importance that the company attributes to the development of the existing products in one hand and to find new possible utilizations for the cork through intensive product innovation, in another. This decision also results from the fact that a deeper analysis of what was mentioned by the company would

require more time dedicated to research and also a longer paper that overcomes the scope and the limits imposed by a Master thesis.

## **Product Diversification**

The product diversification strategy adopted by CA started in the early 60's with a double objective: *“the necessity to reduce risk and to add value to cork material”*(I1), according to the interviewee. When CA was a single product company, around only 20% of the raw material was used to produce cork stoppers, being the other 80% considered as waste. *“Clearly, there was space for optimization and to enhance value through vertical integration of the production process”* (I1).

At that time, the company Corticeira Amorim, Lda served as incubator for all new projects before they become independent business units (BU). The idea was to use the waste from the stoppers production and transform it in composites that could be used in new solutions in several areas.

The first project included in this diversification process was the use of cork as insulation material in 1966 with the opening of the Corticeira Amorim Algarve, Lda. From that period until recent days, CA had been diversifying its portfolio of products, in several fields, by giving an extra importance to the continuous search for new applications and solutions. This diversification strategy led, in terms of products supplied, to four BU: Cork Stoppers, Isolation Cork, Floor and Wall Coverings and Cork Composites that encompasses a considerable range of products with different characteristics and adapted to the market needs.

In the beginning of 1980, the company assumed a new attitude: *“having utilities capable to produce all products resulting from cork, Corticeira Amorim defines a new strategy: quality differentiation, reinforcing its policies and competences in R&D and quality control”* (Uma História Secular - tradição, qualidade e inovação, Corticeira Amorim). This new attitude had major reflections in the company's research department: in 1983 was created the central lab – LabCork – transversal to the entire organization, with the aim to better respond to the market needs, in 1991 the Academia Amorim was inaugurated in order to conduct research concerning wine conservation

and in 1999 the R&D department of the Amorim & Irmãos focused on solving the TCA problem (see Exhibit 11).

Today, CA Innovation and R&D unit is structured based on two main pillars: each BU has its own R&D department focused on that specific product and the Market Oriented Research department, transversal to all organization and responsible for new applications.

### **The link between the Market Oriented Research and BU R&D departments with the Business Development division**

In 2004 CA created a new department responsible to find and explore cork new applications in addition to those normally considered, under the name Department for Cork New applications (DNAPC – Departamento de Novas Aplicações e Produtos em Cortiça). The team allocated to this department worked in a partnership with a group of investigators from the Minho's University – Group 3B's (Biomaterials, Biodegradable materials and Biomimetic) totally dedicated to develop new potential applications for the cork (Dossier IDI, Corticeira Amorim).

More recently this department evolved to what is currently defined as Market Oriented Research department (MOR). According to the company, the decision to create this department was not only related to the necessity of product diversification and growth potential, and consequently risk reduction, but also to the idea that the new alternative materials could have an impact in the utilization of cork stoppers in wine bottles. As a collaborator referred *“We realized that the grow of alternative materials was threatening the maintenance of cork as raw material for the stoppers production (...), being interesting to start considering other cork applications that might be able to deliver higher value added when compared to the traditional cork applications”* (I2, page 1). Another collaborator said *“ The growth potential of the cork stoppers is extremely limited, we do not expect the per capita consumption to grow exponentially while competition becomes more and more aggressive (...) if an industry aims to grow has to think about new alternatives”* (I2, page 1).

The process of conceptualization of new applications starts with an idea that can come from any part: clients' requisitions, internal suggestion or partner's purposes

(Universities or research groups). A collaborator responsible from MOR department said “*given that these new applications are generally connected to necessities never ever thought, it is not so common to result from the market itself*” (I2, page 4). When an idea seems interesting, staff from the MOR and R&D departments meets with the people who suggested the idea and start exploring its potential and best processes to produce it. Given the nature of the idea, it is allocated to any BU R&D department or to the MOR. The idea goes through several steps and if approved in all results in a new product that is tested and readjusted according to the needs.

Given the fact that new applications are not known by the market, it is necessary not only to gather as much valuable information as possible, but also to develop all the business around the new product. This task belongs to the Business Development department that works jointly with the MOR in order to integrate new products in the market: the Business development area “*creates the business and makes the link with the market, defines the distributions channels, establishes contacts, protocols and partnerships in order to make the new solution available to the final consumer*” (I3, page 3). The importance attributed to this Business Development Department is key (I2, pages 4 and 5) and essential to create successful product innovations. “*The Business Development department builds up a new business and when it arrives to a point, given its dimension, is allocated to an existing business unit or a totally new unit is created*” (I3, page 4)

Another significant procedure of the Innovation and R&D department is the link that it makes with the most recognized universities and its teams of researchers. This partnership started with the creation of the department for new applications and included only one organization – Universidade do Minho. The number of partnerships enlarged throughout the years and nowadays CA establishes agreements with several organizations. According to one collaborator, these partnerships are valuable in the sense that they allow accessing a higher level of know-how, since they are research groups that own proper technology that would represent a considerable investment that may not be monetized. As stated by a collaborator “*we do not have all the necessary capacities to develop a project inside the company, reason why we search for complementary external capacities outside*” (I3, page 1). In a posterior phase, those investments are made if the idea results in a new product.

Since it is responsible for new applications this department might be considered the *ex libris* of the innovation strategy. Here the concept of “thinking outside the box” is the rule and every idea can become a project with high potential. The value that it can bring to the cork is undetermined and is totally dependent on creativity and capacity to percept market opportunities.

Besides the MOR department activity, which is transversal to all organization, each BU has its own department of R&D responsible to develop new solutions inside that product. According to a collaborator *“for example, the development of a new type of stopper is responsibility of the stoppers R&D department and its work is essential since any fail in those new stoppers is going to have a considerable negative impact in all wine bottles commercialized with that stopper. In terms of losses it can be disastrous”* (I2).

Both MOR and BU R&D departments try to be as closer as possible to the final clients in order to better understand them and to present all new solutions and projects – *“is important for the client to understand that we investigate and develop new solutions. Sometimes do is not enough, you have to show. This will certainly increase clients trust levels – we do not only sell stoppers, we also study them...”* (I2, page 5).

### **Market needs perception and fulfillment**

All the Innovation and R&D structure has a straight link with the market needs perception. Thus, CA attributes a greater emphasis on this activity. Besides the work developed in lab is crucial to have a deep knowledge about the market. According to the company *“one thing is what is written in a scientific article, another is what the market really needs. The market does not want to know if we developed the study A, B or C, what it really wants is to know if we have the solution for that specific problem”* (I3, page 6). Naturally, as written before, this task is responsibility of the Business Development department, but what really makes the difference here is the link that is made with the distributors or, not so frequently, with the final consumer: *“We understood that to achieve the final consumer, it was not so much upon a commercial*

*structure but through developing a net of distributors”* (I3, page 3). This net of distributors will allow the company to understand exactly what does the market want from that product and which characteristics does it really requires.

As affirmed by a collaborator, *“to be a successful product it has to have market, it has to accomplish its function and it has to add value”* (I3). For the first two, the role of the distributors is essential.

The constant need to respond to the market needs is also verifiable by the constant monitoring of the implementation process, mainly in new applications. *“We make a periodical monitoring, with regular meetings and email exchange”* (I3, page 3). The process starts with a prototype confined to a lab scale, where the company runs the first tests that will support the decision to continue or give up the project. The prototype is applied in a small scale *“where we understand if the solution provided works or not and what are the necessary changes to improve the product”* (I3, page 3). This phase is followed by the client in order to comprehend which alterations to make and if they are providing the desired results. Only after this phase, the product goes to the production line and becomes available, in order to be applied in a bigger scale. This process of continuous testing and improvement of the product is seen as fundamental to achieve the market needs and to improve quality.

### **The constitution of the teams**

The particularity of the teams is, once more, related to the need of understand the market. In this sense, according to the company there is not a specific team designed for each project. The MOR department team is itself dedicated to develop any potential idea. What happens is that, when the company is dealing with a new application is probable that for not so traditional markets, there is the need to have additional know how from someone belonging to the industry. Apart from this aspect that is more common in new applications, the teams are in general very flexible: *“generally are present the R&D responsible of that BU, someone from the client, a group of technicians and someone from the commercial department, even if there is not yet a final solution”* (I3, page 5). It was also revealed that in the case of the stoppers, that have agglomeration processes included, is common to ask someone from the composites BU to participate in the product development process. On the other hand, if

we consider not so traditional projects, like Embraer, is natural to built partnerships, mainly because most solutions include other materials besides cork, since it “*is impossible to develop solutions alone*” (I3, page 5).

## V. Discussion

As stated before the aim of this project is to comprehend how some specific resources or capabilities were developed in CA, in order to achieve a competitive advantage position. Before further discussion, is relevant to stress that the following analysis is a practical contribution to the literature already available. Thus, the analysis is based on a single Portuguese company and the focus is on one single possible source of competitive advantage among those presented by the company.

### VRIO analysis

In order to be as coherent as possible I opted to first analyze the identified resources according to Barney’s (1997) findings and later, in a posterior phase, to apply the theoretical model that will illustrate the process to transform those resources in a competitive advantage. Therefore I systematized the identified resources in Table 3 in order to analyze each one according to VRIO analysis, in other words, in terms of value, rareness and inimitability, being the “O” related to the organization skills that constitute the capability.

**Table 3 – Identified Resources**

Resource	Product Diversification
MOR Link between MOR/BU R&D and Business Development Partnerships Market needs perception – Distributors Teams constitution	



According to Barney (1991), valuable resources are those that allow the company to design and implement strategies that improve its performance by enhancing the company's efficiency and effectiveness. All the five resources identified permit, in a more direct or indirect way, to improve company's efficiency or effectiveness. More particularly, the MOR activity, as well as partnerships and the constitution of the teams allow CA to develop the solutions in the right way, since they are dedicated to find the right characteristics that the products need to have. On the other hand, both Distributors and the Business Development department action play an important role in identifying market opportunities in order to come up with added value solutions. In this sense, based on Barney's (1991) findings it would be possible to say that all the above resources are considered as being valuable, however we realize that per se they cannot accomplish the objective of improve efficiency or effectiveness, in fact what we do recognize is that they always need to be linked to other resources or capabilities in order to improve performance. At the end we conclude that, alone any resource can be consider as valuable, nevertheless if we consider other definitions for valuable resources it might lead us to different conclusions.

Concerning rareness it would be necessary to make an analysis for each resource mentioned. The MOR department, as the name indicates, is a department focused on research, mainly concerning new applications and market needs. Despite being one of the motors of the innovation inside the company, the constitution of a specific department designed to come up with not so traditional solutions cannot be considered as rare. Both technology and knowledge people that are required in a research department are equally available in the market. Despite its extreme importance they cannot be considered as rare. The Business Development role and its link to the MOR and to the R&D departments of each BU is a connection that might be considered as rare, since it is not something that competitors can buy in the market. The link between the Business Development and the other innovation and R&D departments is something that is tacit to the company and results from internal procedures. People inside these two departments already know what to do and how to do it, and the comprehension of this procedures might be extremely difficult from someone outside the company. The third resource identified is the partnerships between CA Innovation and R&D departments and the research groups or experts in particular areas. Since these partnerships are available in the market for any competitor and they depend from the performance of a

third party that is hired, it cannot be considered as rare. The comprehension of the market needs through distributors and industrial partnerships is rare, since it is difficult to find good distributors and partners in the market. The reason behind this is that finding a good distributor depends on the image that they have from the company that is providing the product. Naturally, they are more willing to do business with companies that already proved to be consistent and trustful. Thus, in this aspect CA is able to deal with valuable distributors that other companies will not be able to contact with. Finally, the teams' constitution is not a rare resource, since it is quite easy for a company to understand the mix of people and competences that it has to have inside a team in order to develop a particular project. Knowledge people are available in the market so it is not considered as rare.

Only those that were considered rare will be analyzed in terms of its propensity to be copy, given that those that are easily available in the market will be, naturally, acquired by any other company. The Business Development department role and link to the other R&D departments is considered to be difficult to imitate, given it is extremely dependent on tacit knowledge that was developed throughout the years. Competition could even create the two organisms inside the organization, yet they could never perform the same way, since its added value results from procedures that are not explicitly defined. Distribution channels are also difficult to imitate. The number of distributors is limited as well as the number of brands that they commercialize. This way, the ones with better image and reputation in the market are those that will access better distribution channels in an easier way. Valuable distributors will allow the company to have a greater and more reliable contact with the consumers, permitting the company to offer products that better match the market needs.

### **Model Application**

Next to the analysis of the resources that were the basis for the product diversification and the conclusion that this capability meets all the necessary requirements to explain the competitive advantage position, the analysis focuses now in the micro foundations of the capability. To explain the process that transforms the referred resources in sources of competitive advantage in CA, I had to use an existing theoretical model that could work as a starting point. The model that I found to be more

adequate to the cork Industry was the model provided by Cardeal (2010), since it can be applied for industries with moderate change rates, like the cork industry. In this sense, I excluded the utilization of the model proposed by Teece et al. (2007), designed for industries with rapidly change environments or the model proposed by Zahra et al. (2006) that attributed a major importance to the top managers.

The model provided by Cardeal (2010) divides the process to develop capabilities into three main blocks: catalysts for change, definition of the route and action to the route (see Exhibit 15).

The catalysts for the change are the starting points of the process, where new ideas for projects occur as result of the observation of the market opportunities and gaps. According to Cardeal, whose fundamentals for this model derive from Teece et al. (2007), these markets opportunities can result internally or externally. In CA, as written before, ideas can emerge from both, however the identification of opportunities externally is more related with traditional products belonging to the existing BU, where adjustments suggested by someone outside the company – intermediaries or final clients - are more common. In this case, the idea to develop a new product results from market observation and gap identifications either by the company itself or through a third party suggestion. On the other hand, opportunities can also be internally identified. This can happen with all type of products but occurs mostly with not so common applications. Naturally, when we are considering alternative uses for cork that do not fit in any of the business units already settled, is more difficult to result from external suggestion or market needs perception. In these cases is more frequent to be identified internally, as an outcome of some particular study about cork characteristics. Because the company is extremely open to innovative ideas, all sources are considered and analyzed in order to evaluate their potential (see Figure 1).

In this initial phase, CA attributes a great importance to the partnerships that are established with external research groups. Since their work is essential to develop any idea, I opted to consider it in the beginning of the framework designed for CA (see Figure 1).

At this stage, Cardeal attributes a greater importance to the role of the top managers in identifying opportunities (see Exhibit 15); however in the particular case of CA we cannot verify such characteristic. The model provided by the author was

designed for small companies, some of them with a familiar character, where the top manager's participation and interference in the decision-making process is not only regular but also considered as crucial. For this type of companies makes sense to develop a model that attributes a greater importance to the manager's role, however it does not make sense to also consider it to big enterprises. As a big company present in several countries, CA leadrned to decentralize the process and only decisions involving high investments in resources or major structural modifications are reported to the top managers. Decisions considering product developments are normally taken at a lower level. Thus, it was not expected that in CA, managers would have a crucial role at this stage of the process and after some interviews it was possible to confirm those expectations. Naturally, when applying an existing model to a practical example is expected a certain degree of adaptation.

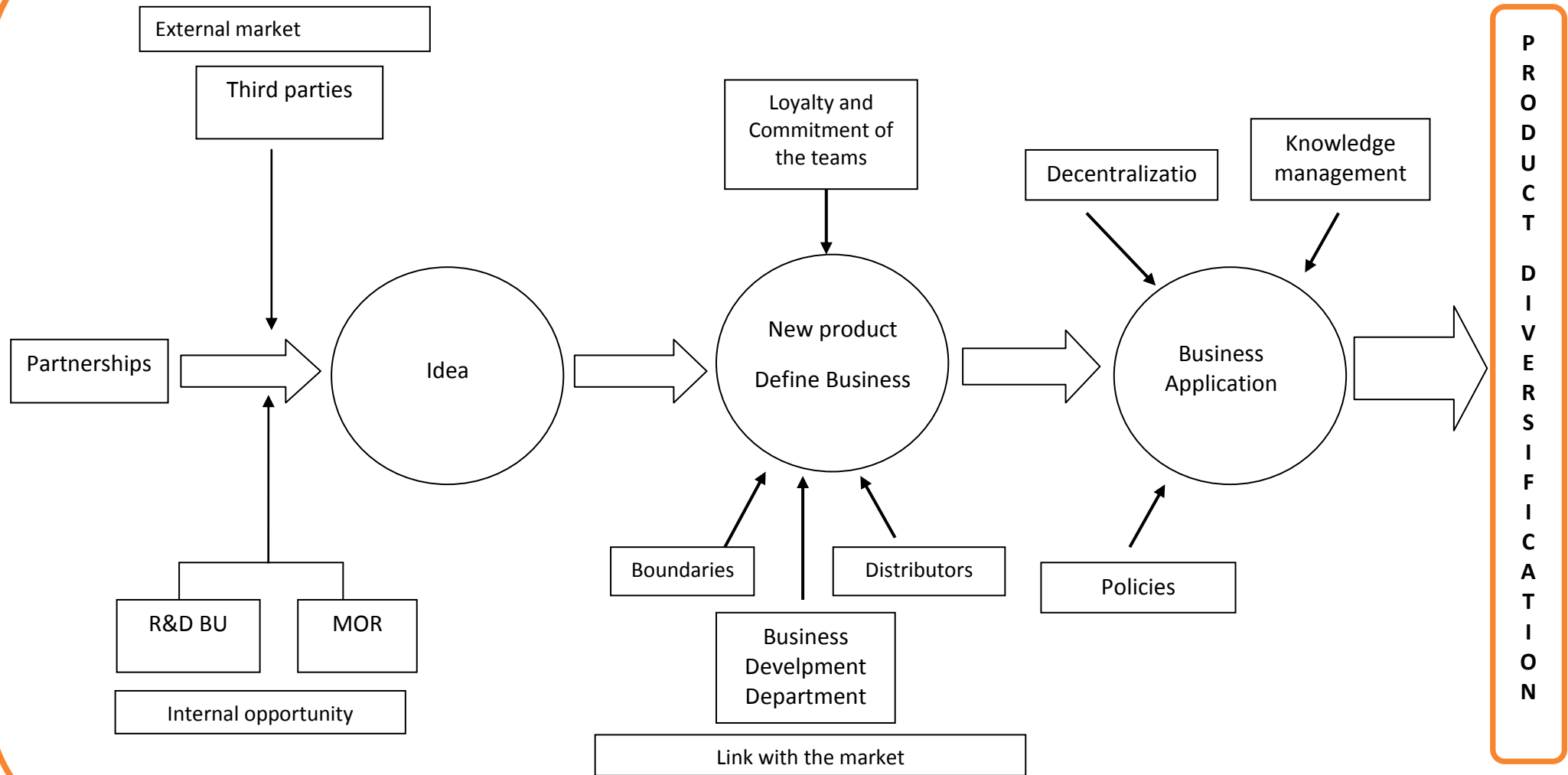
The next step is to start designing the business, supported by two aspects: the importance to define limits to manage and explore complements and internal loyalty and commitment (see Exhibit 15). A new product includes a priori the necessity to comprehend the market: who is the final consumer, which are the characteristics to incorporate in the product and who is going to produce what (boundaries), given that in some cases the product includes other materials besides cork, being necessary to have this jointly work. The following task is to define what are the resources necessary to develop the project and what is it going to be produced by CA. As explained before this is the core activity of the Business Development department that is responsible to create the market for the new product while maintaining the link between the BU and the market (see Figure 1). At the same time a greater emphasis is attributed to the staff commitment. CA assumed, in recent years, its new attitude towards innovation. Higher investments and increasing dependency of the business on innovation shows that the role of the collaborators responsible for the R&D departments is considered to be of extreme importance. The company is so deeply associated to cork innovation that the participation and commitment of the collaborators is almost part of the company's culture, enhanced by the goal to consistently add value to the cork (see Figure 1).

Next to the business delineation is time to implement the new model. According to the author, there are four categories of elements that tend to potentiate the capacity to change and the implementation of a new business model: decentralization, perseverance, policies and knowledge management (see Exhibit 15).

As stated before, CA characterizes itself from being a decentralized company. Decisions are taken at a lower level allowing the company to respond faster to the market needs. Top managers are only asked to interfere when the investments involved are heavier. This allows having a greater capacity to quickly respond to the market needs. The Policies can include, according to the author, distinct fields. The link between the Business Development department and the other two R&D structures as well as the market needs perceptions through distributors can be allocated to this sector and are a crucial part of the process as explained in the previous section. Finally, the knowledge management that in CA's particular case is crucial, since the constitution of the teams, decisions to establish partnerships and the success of the MOR relies on the ability of the company to manage its human resources and competences inside the company (see Figure 1).

The important aspects related to the product diversification described above are systematized in the following scheme, which was adapted to the particular case of the company.

**Figure 1** – Cardeal’s theoretical model adapted to Corticeira Amorim



## **VI. Conclusions**

The importance of achieving a position of competitive advantage gets a greater magnitude in an economic environment characterized by being aggressive in terms of competition. Despite its importance, past researches were not able to come up with a ‘generic formula’ that would be able to guarantee companies to achieve that position. The present study shows exactly that the theme of competitive advantage is still controversial and in progress, given the differences between theories that try to explain how resources or capabilities are managed in order to generate competitive advantages. The existing literature was the result of several years of research that allowed the development and consolidation of some important concepts. The contribution of several authors culminated in a rich portfolio of articles, books and documents that by adding more information and different perspectives contributed to more solid and clear theories.

The present project is, in the same way, a contribution to the theme of how to built competitive advantages. As stated in the Introduction section the aim of the study was to give an extra contribution to all the work developed before and I believe that is possible to say that it accomplished the objective. Firstly, we believe that by focusing on a particular case of a company, the study is providing a valuable practical example of how certain capabilities can be managed in order to increase company’s performance. At the moment, written literature about Dynamic Capabilities has been mainly empirical, enhancing the contribution of the present study.

Secondly, after identifying the resources and capabilities of the company, we proceeded by doing a VRIO analysis in order to understand if the capabilities identified were able to be validated by the Barney’s analysis. This allowed understanding the value of the identified capabilities as well as its contribution to the CA’s performance.

Finally, we decided to apply an existing model developed in 2010 by Cardeal in order to codify the process through which the company transformed resources and

capabilities in potential sources of competitive advantage. By doing that we are contributing to add more tangibility to the research already available, since this was one of the critiques pointed out initially. Naturally, to come up with a model for CA, we had to do some adjustments and adaptation to the author's original model.

Clearly we can also point some limitations that deserve to be stressed, in order to allow future studies to overcome them and achieve more valuable findings. Because the project was develop based on one single company – Corticeira Amorim – there is a certain level of uncertainty to what relates to the conclusions. Naturally, in order to become more reliable it would be necessary to evaluate more capabilities and resources in other companies besides Corticeira Amorim and even in different industries. By developing more studies it would be possible in one hand to reaffirm that the identified capabilities and resources were truly potential sources of competitive advantage, and on the other to increase the validation of the model applied and originally proposed by Cardeal (2010). Another limitation of the present study is the fact that, because a Master thesis must follow a specific structure, I had to focus on one potential source of competitive advantage despite, as written before, the Corticeira Amorim's collaborators had pointed out more than one aspect. Finally, as said before the present study is a practical contribution for the existing theories. We are not developing any theoretical model or new concept to add to the literature already available.

Future research related to the theme of competitive advantage must consider the aspects cited above in order to overcome them. Thus, regardless this contribution, there is still a lot to be researched and clarified in the field of competitive advantages.



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# VIII. Exhibits

**Exhibit 1** - Forest species in Portugal (distribution of forest acreages by species – 1000 ha)

Pure dominant, mixed and young forest stands	1995/98	2005/06
Pine-tree	976.1	710.6
Eucalptus	672.1	646.7
Cork oak	712.8	736.7
Holm oak	461.6	388.3
oak	130.9	117.9
Stone Pine	77.6	83.9
Chestnut tree	40.5	28.2
Various Deciduous woods	102	96.8
Various Resinous trees	27.3	14.2
Other wooden formations and miscellaneous	-	18
Young Forest stands	-	295.5
<b>Total</b>	<b>3220.9</b>	<b>3136.8</b>

Source: DGRF – IFN 2005/2006

**Exhibit 2** – Main cork exporters worldwide

Country	euros		%	%2
	2004	2005	2004	2005
Portugal	875,144,905	839,375,777	59.13	60
Spain	262,623,211	254,821,055	17.74	18.21
France	51,482,518	46,888,466	3.48	3.35
Italy	46,238,348	43,661,753	3.12	3.12
USA	36,405,437	40,991,753	2.46	2.93
Germany	35,403,226	33,829,032	2.39	2.42
Morocco	20,826,936	27,281,477	1.41	1.12
Tunisia	20,826,936	-	1.27	-
Switzerland	16,509,837	15,746,399	1.12	1.13
Mexico	13,646,412	16,824,853	0.92	1.2
Austria	13,069,472	12,625,964	0.88	0.9
Continental China	11,114,657	16,300,443	0.75	0.94
Algeria	9,641,214	-	0.65	-
Saudi Arabia	9,036,640	4,870,220	0.61	0.35
Hong Kong	8,390,515	8,174,381	0.57	0.58
Canada	6,022,966	5,604,051	0.41	0.4
Belgium	5,816,183	6,022,440	0.39	0.43
Australia	5,769,127	4,499,165	0.39	0.32
UK	6,570,662	6,298,295	0.36	0.36
Netherlands	5,278,874	6,660,642	0.36	0.48
<b>Total</b>	<b>1,480,123,960</b>	<b>1,390,075,090</b>	<b>100</b>	<b>100</b>

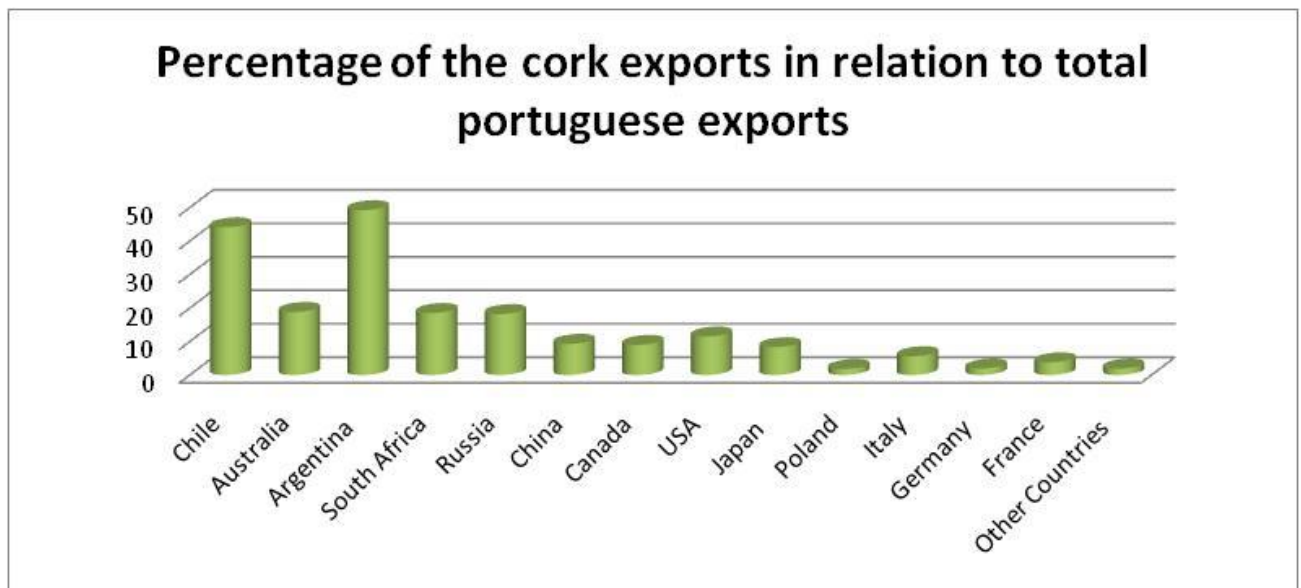
Source: United Nations Statistics Division – UN Commodity trade Statistics Database

**Exhibit 3** – Evolution of the Portuguese cork exports

year	Million €	Thousand tons
2002	903.3	138.5
2003	896	149.6
2004	881.7	154.8
2005	838	153.8
2006	848.5	164.7
2007	853.8	159.4
2008	823.7	158.8
2009	698.3	144.8

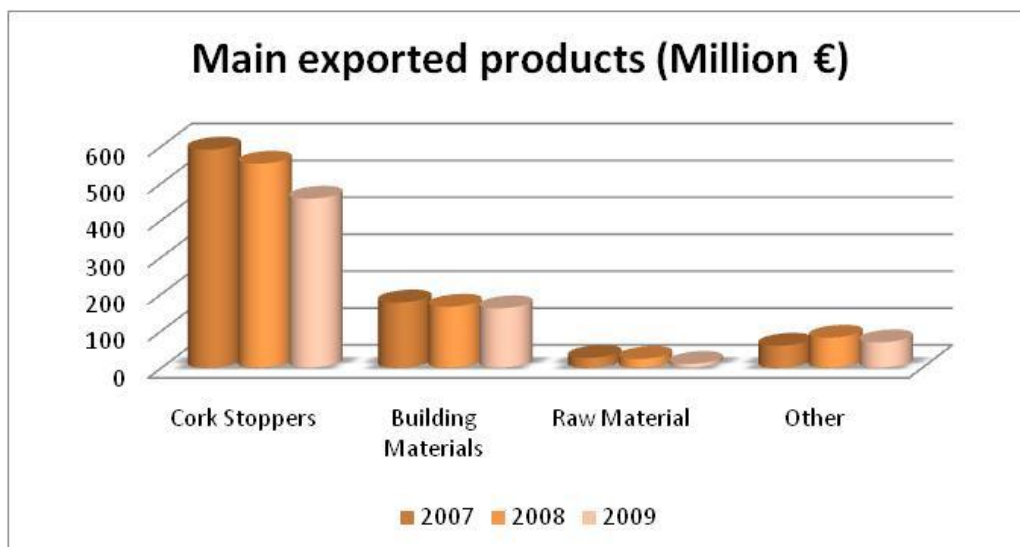
Source: INE

**Exhibit 4** – Percentage of Cork Exports in relation to total Portuguese exports, per country



Source: INE

**Exhibit 5** – Main exported products (millions €)



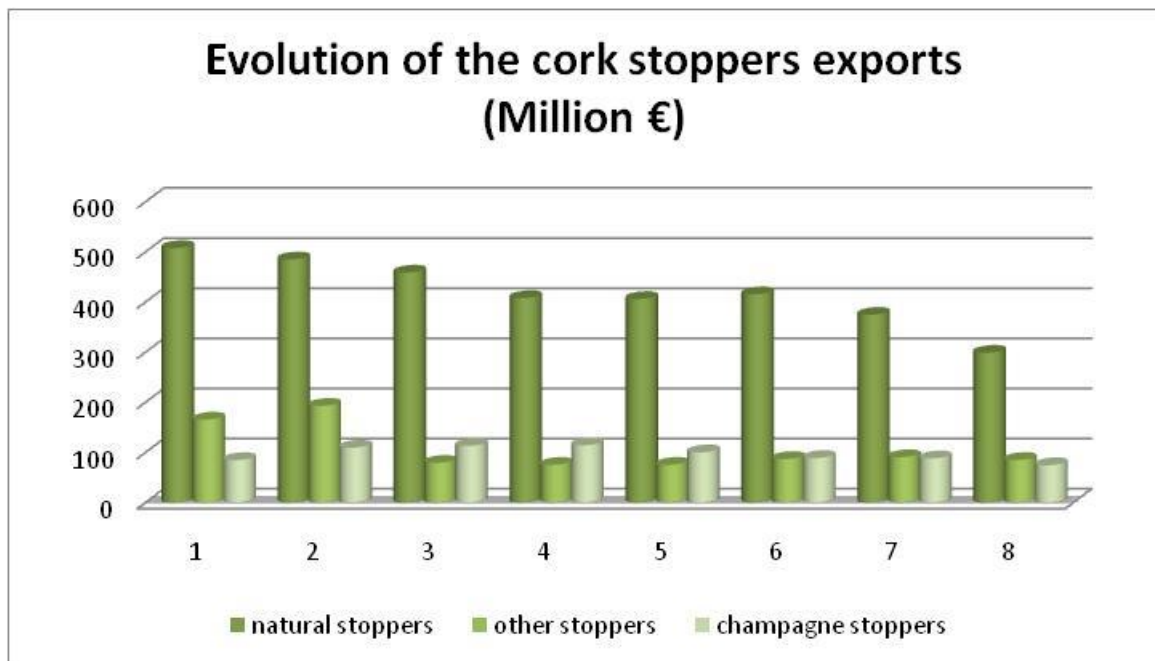
Source: INE

**Exhibit 6** – Main exported products (Thousand tons)



Source: INE

**Exhibit 7** – Evolution of the cork stoppers exports



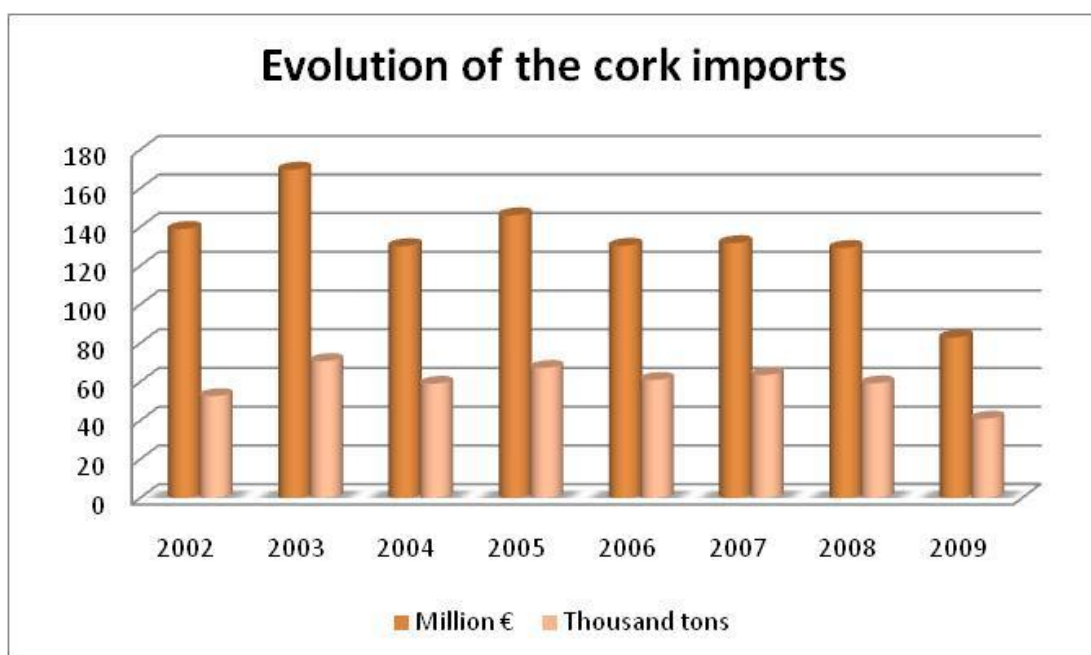
Source: INE

**Exhibit 8** – Portuguese cork exports – building materials (millions € and thousand tonnes)

Guideline Code		2002	2003	2004	2005	2006	2007
Cork waste, Grinded cork, Greanulated or puleverized	Thousand tonnes	27.7	30.7	27.3	27	29.2	26.7
	million €	27.8	25.1	24.9	24	25.8	25.9
Cubes, Blocks, Plates, Sheets, Strips, Tiles, Solid Cylinders in alggglomerated cork with agglutinant	Thousand tonnes	24.2	23	22.7	21.5	25.2	28.8
	million €	78.5	64.5	61	58.2	65.5	72.5
Cubes, Blocks, Plates, Sheets, Strips, Tiles, Solid Cylinders in alggglomerated cork without agglutinant	Thousand tonnes	20.4	22.9	28.4	26.9	30.2	26.6
	million €	50.4	47.1	56.3	46.6	50	44.2
Agglomerated cork and agglomerated cork works	Thousand tonnes	12.2	13.3	15.7	11.8	13.4	12.5
	million €	34.9	35.2	37.2	27.5	33.8	33.8

Source: INE

**Exhibit 9** – Evolution of Portuguese cork imports (millions € and thousands of tonnes)



Source: INE

**Exhibit 10** – Brief Corticeira Amorim's history

Date	Mark
1870	Foundation of the first Corticeira Amorim plant to produce stoppers through a manual process, specifically to Porto Wine.
1922	Foundation of the first Corticeira Amorim enterprise – Amorim & Irmãos, Lda. Became the biggest stoppers producer in the North of Portugal during the 30's.
1963	Start up of the Vericalization strategy (1 <sup>st</sup> phase). Until then the majority of the cork produced in Portugal was exported. Foundation of the Corticeira Amorim, Lda to transform the waste from the Amorim & Irmãos, Lda.
1966	Foundation of the Corticeira Amorim Algarve, Lda
1967	Gerhard Schiesser GmbH – an important commercial point in the East Europe
1972	First plant abroad – Comatral, S.A in Morocco. Startup of the diversification of regions strategy (2 <sup>nd</sup> phase).
1973	Corticeira Amorim, Lda strats the production of cork with



	<b>rubber.</b>
<b>1976</b>	<b>CA buys Samec, S.A, one of the biggest Spanish Cork producers</b>
<b>1981</b>	<b>CA opens a company in Canada to enter in USA</b>
<b>1982</b>	<b>Foundation of Champocork, company responsible to produce champagne stoppers. Modern technology</b>
<b>1984</b>	<b>Hungarocork-Amorim, GmbH, is founded in Hungary</b>
<b>1987</b>	<b>Enter in the market of floors with the foundation of Ipocork – Indústria de Pavimentos e Decoração, S.A (currently, Amorim Revestimentos, S.A).</b>
<b>1989</b>	<b>Acquires the Swedish group – Wicanders, an important producer in the floors market</b>
<b>1991</b>	<b>Cooperation between CA and GTS to produce cork products with rubber. In 1997, CA gets the total control of the group.</b>
<b>1992</b>	<b>Acquisition of the Carl ed. Meyer Society (german) and CDM (belgium)</b>
<b>1999</b>	<b>Acquisition of 50% of Industria Crochera, S.A (Chile)</b>
<b>2000</b>	<b>Constitution of Amorim &amp;Irmãos, S.A – Ponte de Sôr unit</b>
<b>2002</b>	<b>Constitution of Amorim &amp; Irmãos, S.A – Coruche unit</b>
<b>2003</b>	<b>Acquisition of the majority of the capital of SIBL – Société Fabrique Industrielle Bois de Liège</b>
<b>2006</b>	<b>Acquires a participation in Société Nouvelle des Bouchons Trescases, S. A , an important player in the French Stoppers market</b>

**Exhibit 11** – Most important marks in the Innovation and R&D area

With such a worldwide presence and being able to produce a diversified range of products, CA decides to bet in the quality, reinforcing its policies concerning investigation and quality control:

Year	Mark
<b>1983</b>	Creation of the Labcork – central Lab, transversal to all CA in order to respond to market needs
<b>1991</b>	Academia Amorim foundation, an institution to promote wine as well as the good practices concerning its conservation
<b>1999</b>	Amorim & Irmãos R&D department to solve the TCA problem in cork stoppers
<b>2002</b>	Restructuring of some CA departments
<b>2004</b>	Intensificationj CA's competences and partnerships concerning the R&D practices transversal to all organization . Department for new applications (DPNAP) was created in order to transfer knowledge among the organization

## Obtaining competitive Advantages: the case of Corticeira Amorim

Exhibit 12 – Corticeira Amorim Structure

AMORIM NATURAL CORK			AMORIM CORK COMPOSITES			AMORIM CORK RESEARCH			
Matérias-Primas	Rolhas		Aglomerados Compósitos			Revestimentos	Isolamentos	I&D, Inovação	
Amorim Natural Cork, S.A.	Amorim & Irmãos, S.G.P.S., S.A.		Amorim Cork Composites, S.A.			Amorim Revestimentos, S.A.	Amorim Isolamentos, S.A.		
Aprovisionamento	Produção	Distribuição				Produção	Distribuição		
Amorim Natural Cork, S.A. Ponte de Sôr = PORTUGAL	100%	Amorim & Irmãos, S.A. Santa Maria de Lamas = PORTUGAL	100%	Amorim Distribuição Santa Maria de Lamas = PORTUGAL	100%	Amorim Cork Composites, S.A. Mozelos = PORTUGAL	100%	Amorim Cork Research & Services, Lda. Mozelos = PORTUGAL	100%
Amorim Natural Cork, S.A. Coruche = PORTUGAL	100%	Amorim & Irmãos, S.A. = Unid. Ind. MPS Paços de Brandão = PORTUGAL	100%	Amorim Australasia Adelaide = AUSTRÁLIA	100%	Amorim Cork Composites, S.A. Corroios = PORTUGAL	100%	Amorim Isolamentos, S.A. Mozelos = PORTUGAL	80%
Amorim Natural Cork, S.A. Abrantes = PORTUGAL	100%	Amorim & Irmãos, S.A. = Unid. Ind. Raro Vergada = PORTUGAL	100%	Amorim Cork Italia, S.p.A. Conegliano = ITÁLIA	100%	Drauville Europe, S.L. San Vicente de Alcántara = ESPANHA	100%	Amorim Isolamentos, S.A. Silves = PORTUGAL	80%
Amorim Florestal España, S.L. Algeciras = ESPANHA	100%	Amorim & Irmãos, S.A. = Unid. Ind. Valada Valada = PORTUGAL	100%	Amorim Cork Deutschland, GmbH Bingen am Rhein = ALEMANHA	100%	Corticeira Amorim France, SAS Lavardac = FRANÇA	100%	Amorim Isolamentos, S.A. Vendas Novas = PORTUGAL	80%
Amorim Florestal España, S.L. San Vicente de Alcántara = ESPANHA	100%	Amorim & Irmãos, S.A. = Unid. Ind. Coruche Coruche = PORTUGAL	100%	Amorim Cork Bulgaria, EOOD Sofia = BULGÁRIA	100%	Chinamata (Xi'an) Natural Products Co. Ltd. Xi'an = CHINA	100%	Amorim Flooring Austria GmbH Viena = ÁUSTRIA	100%
Comatral = Compagnie Marocaine de Transformation du Liège, S.A. Skhirat = MARROCOS	100%	Amorim & Irmãos, S.A. = Unid. Ind. Champanhe Santa Maria de Lamas = PORTUGAL	100%	Amorim Cork America, Inc. Napa Valley, CA = EUA	100%	Amorim Cork Composites, Inc. Trevor, WI = EUA	100%	Amorim Flooring Nordic A/S Greve = DINAMARCA	100%
S.N.L. = Société Nouvelle du Liège, S.A. Tabarka = TUNÍSIA	100%	Amorim & Irmãos, S.A. = Unid. Ind. Portocork Santa Maria de Lamas = PORTUGAL	100%	Amorim Franca, S.A. Eysines, Bordéus = FRANÇA	100%	Amorim (UK) Limited West Sussex = REINO UNIDO	100%	Amorim Revestimentos, S.A. Barcelona = ESPANHA	100%
S.I.B.L. = S.A.R.L. Jijel = ARGÉLIA	51%	Francisco Oller, S.A. Girona = ESPANHA	87%	Victor y Amorim, S.L. Navarrete (La Rioja) = ESPANHA	50%	Amorim Industrial Solutions Imobiliária, S.A. Corroios = PORTUGAL	100%	Dom Korkowy, Sp. Zo.o Czardwa = POLÓNIA	50%
				Hungarokork Amorim, Rt. Veresegyház = HUNGRIA	100%			Amorim Flooring North America Hanover, MD = EUA	100%
				Korken Schlessor, GmbH Viena = ÁUSTRIA	69%			Cortex Korkvertriebs GmbH Fürth = ALEMANHA	100%
				Amorim Argentina, S.A. Buenos Aires = ARGENTINA	100%			US Floors Inc. Dalton, GA = EUA	25%
				Portocork America, Inc. Napa Valley, CA = EUA	100%				
				Amorim Cork South Africa (PTY) Ltd. Cidade do Cabo = ÁFRICA DO SUL	100%				
				Industria Corchera, S.A. Santiago = CHILE	50%				
				Société Nouvelle des Bouchons Trencases, S.A. Le Boulou = FRANÇA	50%				
				I.M. «Moldamorim», S.A. Chisinau = MOLDOVIA	100%				
				Amorim Cork Beijing, Ltd. Pequim = CHINA	100%				
				S.A. Oller et Cie Reims = FRANÇA	87%				

Source: Sustainability Report 2010, Corticeira Amorim

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A verde: Empresas incluídas no Relatório de Sustentabilidade

Source: Sustainability Report 2010, Corticeira Amorim

**Exhibit 13** – Corticeira Amorim's Business Units

Raw Materials



Cork Stoppers



Floors and Wall Coverings



Composite Cork



Isolator Cork

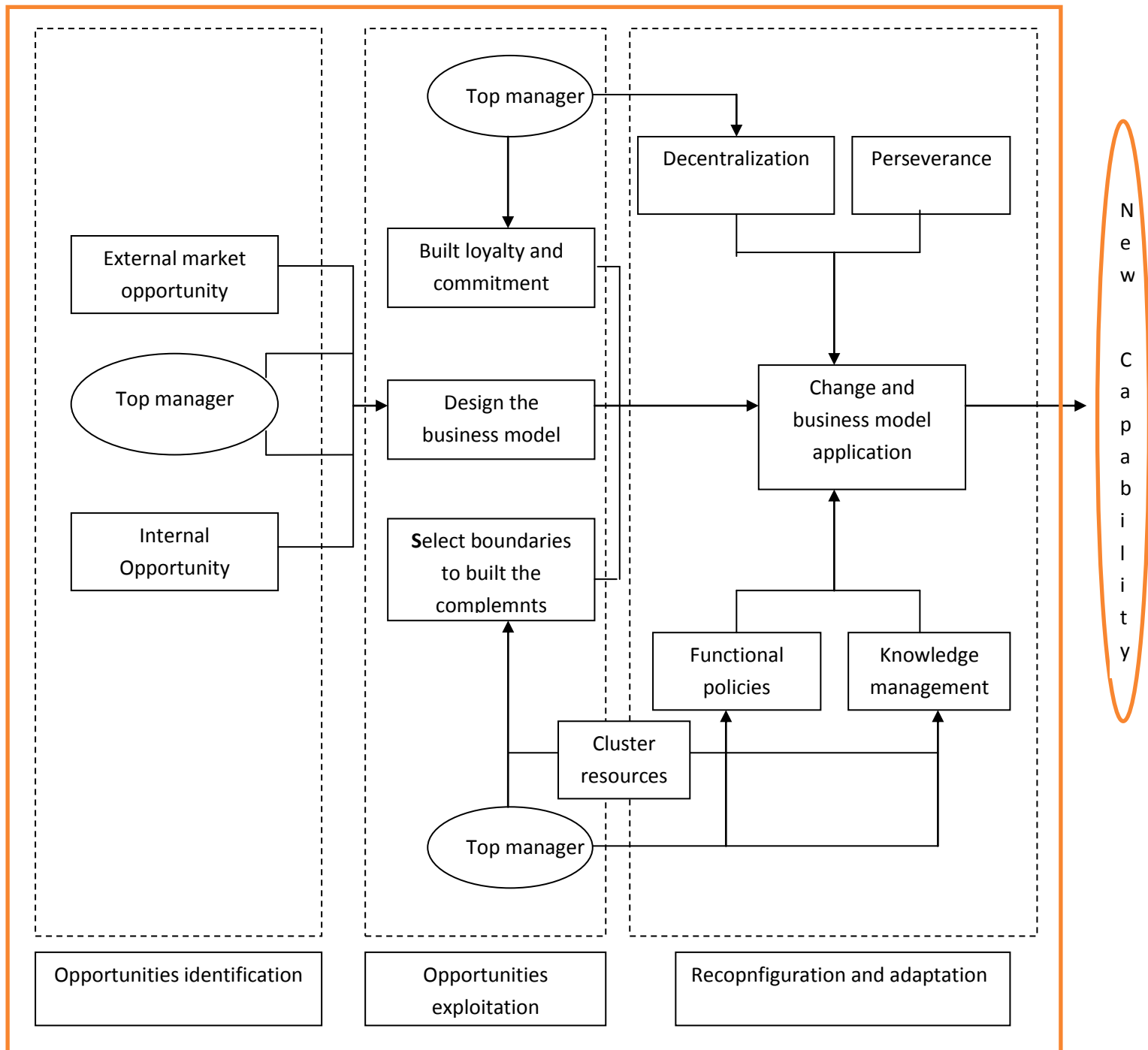


**Exhibit 14** – Worldwide Presence



Source: Sustainability report 2009, Corticeira Amorim

**Exhibit 15** – Theoretical model proposed by Cardeal, 2010



Source: Cardeal PhD thesis



# IX. Documents

## I1 – Questions for the first interview

A Empresa:

1. A Corticeira Amorim fundada em 1870, produzia apenas rolhas?
2. Sendo uma empresa que exporta para vários países e que obtém MP de outros países para além de Portugal, estará a produção e desenvolvimento das várias áreas de negócio limitada a Portugal?
3. A Corticeira Amorim detém a propriedade de alguma zona produtora de Cortiça?
4. Qual a principal área de negócio em Portugal e no estrangeiro? Há uma certa tendência para associar a cortiça à produção de rolhas mas vemos que, ao nível mundial, esta é a UN com menos quota de mercado (25%).
5. Quais os principais clientes dentro de Portugal?
6. Porquê optar por uma gestão vertical de todos o processo? Em que medida é que a gestão vertical poderá ser um elemento diferenciador?
7. Quais os factores que considera como sendo essenciais para se destacarem da concorrência?
8. Poderá o Labcork (Laboratório Central do Grupo Amorim) criado em 1983, ser uma fonte de vantagem competitiva? O elevado Investimento em I&D poderá ser uma fonte de vantagem competitiva?
9. Estará a VC associada a alguma área de negócio em particular?
10. Vendas por UN mostra que 57% dizem respeito as Rolhas. É este o segmento mais importante ou os Isolamentos, cuja procura na construção cresce e a QM internacional é de 80%?

Indústria

1. Quais considera serem os principais drivers da industria da cortiça?
2. Quais as principais tendências para futuro? Como é q a empresa se prepara para essas tendências?
3. Poder-se-à considerar a Indústria Portuguesa de calçado como tendo uma ou mais vantagens competitivas relativamente a outros países? Quais são essas VC?

## **I2 – Second interview**

### **DNAPC**

1. Como surgiu a ideia de criar o DNAPC?
2. O DNAPC pode ser considerado fulcral no que respeita à inovação de produto da Corticeira Amorim? Porquê?
3. O MOR foi criado posteriormente a cada departamento de I&D de cada UN? Porque?
4. Quais os avanços que o DNAPC permitiu? Poderá dar um exemplo particular?
5. O DNAPC possui alguma tecnologia de ponta ou rotina que tenha sido determinante para o sucesso do departamento?
6. De que forma é feita a colaboração com as Universidades?
7. Como é constituída a equipa do DNAPC? Há algum responsável/coordenador de equipa? É dada formação aos colaboradores?
8. Sendo um departamento transversal a todas as UN, como é feita a comunicação entre estas e o departamento?
9. Como é o processo de criação de novas aplicações? Por sugestão dos clientes? Por uma percepção das necessidades de mercado?
10. São feitos protótipos?
11. Como é feito o link entre os departamentos e a linha de produção?

### **Departamento I&D de cada Unidade de Negócio**

1. Tendo cada UN um departamento de I&D, como é feita a divisão entre o que é matéria destes departamentos e o que é responsabilidade do DNAPC?
2. Poderá dar um exemplo específico em que o departamento de I&D de uma das áreas tenha sido fundamental?
3. Há contacto directo com os clientes?

### **TCA**

1. Como foi feita a abordagem ao problema dos cheiros?
2. Adquiriram alguma tecnologia específica para solucionar o problema?
3. Como se desenrolou este processo?
4. Quais os benefícios da eliminação dos cheiros?



5. Uma vez que a Corticeira se caracteriza por elevados padrões de qualidade, como é feito o controlo da mesma?

#### Internacionalização

1. Qual foi a primeira internacionalização?
2. Porque é que a presença global é tão importante para a Corticeira Amorim?

#### Verticalização

### **I3- Third interview**

1. Quando se iniciou a necessidade de diversificar o portfólio de produtos?
2. Quais as etapas mais importantes deste processo de diversificação: criação de departamentos especializados em inovação como o MOR, cronologia com os aspectos mais importantes, etc
3. Que tipo de investimentos foram feitos: tecnologias utilizadas, contratação de colaboradores especializados, parcerias (como por exemplo as Universidades e grupos de pesquisa já mencionados), etc
4. Equipas/ pessoas essenciais no processo de inovação de produto
5. Como é feito o processo de pesquisa quando se pretender desenvolver um produto de umas das UN já existentes? E no caso de se tratar de uma nova aplicação?
6. Exemplo que considere importantes para ilustrar os aspectos acima referidos.